

**Hallauer, Lori**

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**From:** Sparks, Sara  
**Sent:** Monday, October 15, 2018 10:04 AM  
**To:** 'chuck frey'; jennifer.harrington@umconnect.umt.edu; Elizabeth Oleson (olesonea@onewest.net); Jeri Delys; Schmetterling, David; 'Selch, Trevor'; 'Mary Price'; David Rouse; 'Travis Ross'; Tom Mostad; Jean Curtiss ; 'David Strohmaier'  
**Cc:** Sanchez, Brian; Keith Large ; Lawrence J. Dears; Merritt, Steven; Amelia Piggott; Archer, Allie; 'Amber Boerner'; Thomas Stoops  
**Subject:** Agency Response to Addendum 9 Public Comments  
**Attachments:** Smurfit EPA Comment Response Table to Addendum 9 Public Comments.docx

To All: Attached are the US Environmental Protection Agency and the Montana Department of Environmental Quality's Response to Comments on Addendum 9 for the Smurfit-Stone Frenchtown Mill Site. If you have questions or concerns, please contact me at (406) 491-4016. Sara Sparks Remedial Project Manager

## EPA Response to Public Review Comments on Draft Addendum No. 9 to the Remedial Investigation Work Plan

<u>Comment ID</u>	<u>Reviewer</u>	<u>Comment</u>	<u>Response</u>
<b>FWP1</b>	David Schmetterling and Trevor Selch (Montana Fish, Wildlife & Parks)	<b>3.4.1 Benthic Macroinvertebrates:</b> Only one composite BMI sample is proposed from each site. We suspect TEQ concentrations would be highly correlated to species analyzed, so we don't see the value of one single composite from each site without assessing species composition or better yet, analyzing specific taxa separately, and having replicates.	The study was designed to support ecological risk assessment, specifically to assess ingested dose of chemicals of potential ecological concern (COPECs) by insectivorous fish and wildlife. Such ecological receptors do not differentiate species during foraging, and therefore there is no need to sort invertebrates into species groups prior to analysis. No changes to the Baseline Ecological Risk Assessment (BERA) Data Gaps Work Plan are recommended in response to this comment.
<b>FWP2</b>	David Schmetterling and Trevor Selch (Montana Fish, Wildlife & Parks)	<p><b>3.4.2:</b> In general, we agree that sediment and small fish samples should be co-located, however, these should complement the other sampling as well, namely the collection of game fishes we have recently completed (Northern Pike and Rainbow Trout). Therefore, we strongly suggest you include samples collected at the following locations:</p> <ul style="list-style-type: none"> <li>• Blackfoot River near Greenough</li> <li>• Bitterroot River near Lolo</li> <li>• Bitterroot River near Florence</li> <li>• Clark Fork River near Clinton</li> <li>• Clark Fork near East Missoula</li> <li>• Clark Fork River near St Regis</li> </ul> <p>All these locations are near public access sites (primarily state Fishing Access Sites), and Longnose Dace are abundant.</p>	<p>Data from game fish collected in July 2018 was primarily collected to support the Human Health Risk Assessment. The sediment and small fish collection is being conducted as part of the Ecological Risk Assessment. The two activities have different data objectives and co-location of sampling sites will be conducted only where practical.</p> <p>EPA will evaluate the need for an additional background study for the site. If needed, the study would occur next sampling season and could include additional upgradient sample locations.</p>

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<b>FWP3</b>	David Schmetterling and Trevor Selch (Montana Fish, Wildlife & Parks)	<p><b>3.4.2:</b> Few if any upstream samples that have been identified would be outside the area that has been historically influenced by the site, so therefore, they are all considered “treatment” sites. There are no controls or locations that would help determine what is “background” or had been unaffected by the site. This is a serious flaw in this study’s design. If there are compelling data that suggest otherwise, that is the locations described in this document are outside the area influenced by the Mills operation for decades, we have not seen them.</p> <p>Although it is not an explicit objective of the study to understand the source of any contaminants in fish, sediment, or the river, minimally it would be helpful to understand the distribution of these contaminants over a larger geographic scale than the one presented in this document.</p> <p>Similarly, the sample locations in O’Keefe and LaValle creeks are only sites that have been affected by the operation of the Mill. Sites further upstream and outside the influence of the Mill should be included.</p>	<p>EPA is still determining the area that has been historically influenced by the Site. Data collected to date do not support the proposition that there was extensive aerial deposition because past operational practices and the lack of contamination in near site sample locations.</p> <p>EPA will continue to review all potential pathways of contamination at the site. 2018 sampling should determine if O’Keefe and LaVelle Creeks have been affected by site operations.</p> <p>EPA will evaluate the need for an additional background study for the site. If needed, the study would occur next sampling season and could include additional upgradient sample locations.</p>
<b>FWP4</b>	David Schmetterling and Trevor Selch (Montana Fish, Wildlife & Parks)	<p><b>3.4.2:</b> Indeed, the home ranges of Longnose Dace are relatively small, and that is what makes them an excellent species to compliment other fish evaluations. However, the assertion that Longnose Dace occupy a home range of only 40m is misleading. This small home range taken from a single source (Hill and Grossman 1987), which probably reflects the habitat unit size in those small North Carolina streams which varied from 2-11m wide (stream width, along with channel slope, etc... is related to habitat unit size). To make comparisons of those habitats (in Hill and Grossman 1987) to the Clark Fork River, whose width, and habitat units, are at least an order of magnitude greater is inappropriate. Habitat unit size is a good, biologically significant reference to use for comparisons</p>	<p>If it is assumed that the longnose dace home range is 5 times greater in the Clark Fork than in the subject of Hill and Grossman’s (1987) study, it will still not likely be large enough for populations at each of the sampling locations to intermingle. This study is to support risk assessment and to support determination of whether COPCs are coming from the site, and if so, are they detectable in downstream environmental media including fish. Collecting multiple samples within a mile of one another in the river is consistent with the data quality objectives for the BERA Data Gaps Work Plan.</p>

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		<p>(e.g., Adams and Schmetterling 2004; Young and Schmetterling 2012).</p> <p>As a result, we strongly suggest spacing the samples much farther apart to avoid pseudo replication, or simple replication of the sites. That is, in order to sample in biologically meaningful different locations, the same number of sample sites could be used, but we recommend combining many of the existing sites. For example, 46-CFR and 47-CFR could be combined to one, 53-CFR, 54-CFR, 55-CFR could be combined into one intermediate location, and similarly, 57-CFR and 61-CFR could be one site. Then, those additional 6 locations we referenced earlier should be added.</p>	<p>EPA will evaluate the need for an additional background study for the site. If needed, the study would occur next sampling season and could include additional upgradient sample locations.</p>
<b>FWP5</b>	David Schmetterling and Trevor Selch (Montana Fish, Wildlife & Parks)	<p><b>3.4.2:</b> Furthermore, because of the small home ranges exhibited by Longnose Dace, there would be the opportunity to identify other sources of contaminants to the river that the EPA and PRP's have alluded to, such as the City of Missoula Wastewater Treatment Plant and the Bonner Mill. However, with the proposed sampling plan none of this would be possible.</p>	<p>The purpose of the remedial investigation, which includes risk assessments, is to evaluate the potential contamination associated with the site. It does not include a broad evaluation of sources around the watershed using fish tissue samples as a means to describe spatial patterns.</p>
<b>FWP6</b>	David Schmetterling and Trevor Selch (Montana Fish, Wildlife & Parks)	<p><b>3.4.2:</b> There is not nearly enough detail of the methods to evaluate the sample preparation methods in 3.4.2 page 3-10.</p>	<p>Fish handling methods are described in Appendix B. No dissections are planned.</p>
<b>FWP7</b>	David Schmetterling and Trevor Selch (Montana Fish, Wildlife & Parks)	<p><b>3.4.2:</b> The use of "any individuals of non-target species other than salmonids" is strongly discouraged. The collectors should be able to easily collect sufficient Longnose Dace and Longnose Dace alone. Introducing other species into the samples would completely invalidate the results. For example, other minnow species or sucker species perform extensive migrations and likely would not be reflective of the conditions at a specific location that a more sedentary species like Longnose Dace provides.</p>	<p>Comment noted. As described in the BERA Data Gaps Work Plan, preparation of final composite samples will be performed in consultation with EPA and EPA approval. The rationale for compositing samples will be documented in the final report.</p>

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<b>FWP8</b>	David Schmetterling and Trevor Selch (Montana Fish, Wildlife & Parks)	<p><b>3.4.2:</b> If the collectors are incapable of identifying Longnose Dace or distinguishing them from other minnow species, they should not be permitted to do this work. Minimally voucher specimens should be collected to assess the quality of the fish identification. If this will be performed, please provide the methods for collection or QA/QC of the species identification.</p> <p>It is unclear from this document, conversations with some of the consultants, as well as the Application for a Montana Scientific Collector's permit, who will be doing the fish collection and fish preparation and their knowledge, ability, and qualifications.</p>	Qualified personnel performed the work described in the BERA Data Gaps Work Plan and EPA/MDEQ personnel will be present during collection activities. Respec Consulting was contracted by the PRPs for the fish collection and preparation.
<b>CSKT1</b>	Mary B. Price (Confederated Salish and Kootenai Tribes)	<p><b>Air deposition modeling is needed to determine appropriate background sample locations that are clearly outside the area of influence from historic mill operations.</b> As previously noted the Tribes would strongly support this approach and encourage EPA to involve trustees in the air depositional modeling process and selection of background locations. Absent air deposition modeling background sample locations may not be "background" because both upstream and downstream sites and sites within operable units (i.e. OU1 small mammal sampling) could be affected by historic air deposition. The selection of background sampling locations is arbitrary absent air deposition modeling. As previously noted the use of the term "background" should be avoided until appropriate locations that are clearly outside of the area of influence of the Smurfit site are identified.</p>	<p>EPA is still determining the area that has been historically influenced by the Site. Data collected to date do not support the proposition that there was extensive aerial deposition because of past operational practices and the lack of contamination in near site sample locations and background samples from other sites located in Missoula.</p> <p>If commenters are aware of published studies indicating that the mill was a source of aerial deposition of contaminants over a wide area they are encouraged to provide it.</p>
<b>CSKT2</b>	Mary B. Price (Confederated Salish and Kootenai Tribes)	<p><b>Spatial boundaries for fish tissue sampling of different trophic levels should match in order to determine the bioaccumulation of Dioxin/ Furan and PCBs.</b> The spatial boundary for the collection of longnose dace (Clark Fork River, Bitterroot River) differs from the spatial</p>	Please see the response to Comment FWP2. Data from game fish collected in July 2018 was primarily collected to support the Human Health Risk Assessment. The sediment and small fish collection is being conducted as

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		boundary for the collection of rainbow trout and northern pike (Clark Fork River above confluence with Blackfoot River to St. Regis, Blackfoot River, Bitterroot River). What is the rational for the different spatial boundaries?	part of the Ecological Risk Assessment. The two activities have different data objectives and co-location of sampling sites will be conducted only where practical.
<b>CSKT3</b>	Mary B. Price (Confederated Salish and Kootenai Tribes)	<b>Maps showing sampling locations exclude valuable information that inhibits analysis and obscures potential data gaps.</b> Map figures for Clark Fork River /tributaries sampling locations would benefit by displaying river miles in order to determine distance between sampling locations. Displaying relevant towns (i.e. Lolo, Missoula, Frenchtown, Alberton, Saint Regis, Greenough) would also be helpful. As previously noted we request EPA develop a regularly updated geodatabase that is accessible by all interested parties.	Figure 1-1 provides a perspective on the entire study area and the major town (Frenchtown) and city (Missoula) within the study area.  EPA will require PRP's to add additional details such as labels and geographic features to future maps. Actual Geographical Information System (GIS) points were published in the BERA Data Gaps Work Plan, appendix tables. These were provided to the sampling team, who evaluated site conditions at each point for proper sampling criteria. Points may be relocated to some degree during sampling but a GPS point will be recorded at the new sample location and a Data Summary Report containing all the final sample locations will be provided.
<b>CSKT4</b>	Mary B. Price (Confederated Salish and Kootenai Tribes)	<b>Dioxins / furans and PCBs should be analyzed for all abiotic media / biota that may be exposed to groundwater.</b> EPA has identified that waste areas (i.e. sludge ponds and landfills) as sources of contaminants, based upon the exceedance of the dioxin Circular DEQ-7 Numeric Water Quality Standards in the groundwater under the waste areas. On-site ponds are fed by groundwater. Why is dioxin excluded from analysis of sediment porewater in ponds?	Ecological risks due to dioxins and furans in ponds will be addressed by evaluating wildlife ingestion of sediments, surface water, and benthic invertebrates during foraging within ponds. Dioxins and furans will be measured directly in these media. Additional information to support the design has been added to the BERA Data Gaps Work Plan in response to this comment.

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<b>CSKT5</b>	Mary B. Price (Confederated Salish and Kootenai Tribes)	<b>Additional questions regarding sampling design and EPA oversight.</b> What are the physical, chemical or biological attributes that guided the selection of sample locations for sediment, surface water, and fish tissue samples within the Clark Fork River /tributaries? Did EPA participate in preliminary site reconnaissance to finalize sampling locations for sediment, surface water and fish tissue in the Clark Fork River, Bitterroot River, creeks, ponds, terrestrial areas? Will EPA be on-site to observe sampling? Will all sampling locations including the Clark Fork River, creeks, ponds and terrestrial areas be recorded with GPS and photographed	EPA participated in the reconnaissance activities on July 24–26. As stated in the data quality objectives of the Work Plan, sample locations were selected to allow the risk assessment to address spatial patterns of chemical concentrations in the river and creeks, and to calculate incremental risks associated with the site, if any. The biological tissues for sampling were selected to facilitate evaluation of risk to the ecological receptors of concern to the BERA, and results will be used in assessment of exposures through ingestion of tissues of the organisms collected, or through evaluation of critical tissue residues of those organisms. Plans for recording and documentation of field data are presented in appendices. EPA and MDEQ personnel provide oversight during field collection activities.
<b>CAG1</b>	Smurfit-Stone Community Advisory Group	<b>Table 3-4 Data Quality Objectives, Sediment Porewater from Onsite Ponds:</b> The sampling plan calls for deploying for four weeks Peepers and/or PushPoint Samplers with semipermeable membranes to analyze for dissolved and total metals in porewater sampling locations in onsite ponds. (See also Appendix A, page 11, 2.4.3 Porewater). The CAG recommends the porewater samples also be tested for dioxin/furan congeners, similarly to testing planned for surface water and sediments, macroinvertebrates, fish and small mammal tissue.	Ecological risks due to dioxins and furans in ponds will be addressed by evaluating wildlife ingestion of sediments, surface water, and benthic invertebrates during foraging within ponds. Dioxins and furans will be measured directly in these media.
<b>CAG2</b>	Smurfit-Stone Community Advisory Group	<b>Appendix A, 2.3.1 LaValle and O’Keefe Creek Sampling:</b> According to the Figure A-4 map, the two upstream sampling locations for LaValle Creek (34-LV and 35-LV) and the single upstream location for O’Keefe Creek (40-OK) are quite close to the mill Site. In particular, 35-	EPA believes the current 2018 sampling locations for LaValle and O’Keefe creeks will add additional background information to characterize the creek and its water.

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		LV is barely outside the Site. The CAG recommends the upstream sampling locations be further away from the Site's potential "area of influence." Concern exists for possible historic aerial deposition and/or high water contamination to these upstream locations so close to the mill Site.	
<b>CAG3</b>	Smurfit-Stone Community Advisory Group	<b>Table 3-6 Data Quality Objectives, Fish Tissue from the Clark Fork River:</b> The sampling of longnose dace is proposed, a minnow-like fish which has small home ranges and high site fidelity. Documented home ranges, though, have ranged from 14 meters in North Carolina to up to 500 kilometers in an Appalachian stream. <sup>1</sup> Researchers may want to ensure that occupied test locations are separated by at least several kilometers, perhaps as many as 10 kilometers, to ensure sampled populations are truly independent. <sup>2</sup> The CAG recommends at least one sample location be upstream as far away as up the Blackfoot River to increase the probabilities of obtaining verifiable differences in background measurements from a fish population adequately distanced from the mill.	EPA will evaluate the need for an additional background study for the site. If needed, the study would occur next sampling season and could include additional upgradient sample locations.
<b>CAG4</b>	Smurfit-Stone Community Advisory Group	<b>Table 3-7 Data Quality Objectives, Small Mammal Tissue from the Upland Habitats of the Site:</b> The Sampling Plan focuses on trapping small mammals such as shrews and deer mice on OU2 and OU3, with background samples trapped on OU1. Even though shrews (440-750 yards) and deer mice (1/2 – 4 acres) have small home territories, it is not inconceivable they could roam between the various operable units. Even the Sampling Plan notes the traps should not be set out for longer than four consecutive nights per week, for a maximum of two consecutive weeks because the	In general, for the kinds of small mammals that are expected on the site and targeted by the BERA Data Gaps Work Plan, the literature has documented very small home ranges, usually less than 1 acre. Risk assessment reflects "reasonably expected" conditions and does not typically address less likely scenarios such as small mammals traveling substantial distances. The reasons that two locations in OU1 were selected for sampling small mammals that will be

<sup>1</sup> [https://en.wikipedia.org/wiki/Longnose\\_dace](https://en.wikipedia.org/wiki/Longnose_dace)



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		population can be depleted and the community composition altered (Appendix B 2.3.9.3. Small Mammal Trap Deployment). The CAG recommends background small mammal tissue for background purposes be collected further away than OU1.	compared with those from OU2 and OU3 are: 1) the ERA for OU1 is complete and found no unacceptable ecological risk; and 2) data on soil chemistry in OU1 has been developed for the RI, and therefore exposure conditions of the small mammals in OU1 are already known. EPA will be looking at all sample results that come from OU1 with scrutiny prior to making any generalizations regarding background levels. Depending on data produced by this sampling event, additional background sampling off-site could be necessary.
<b>CAG5</b>	Smurfit-Stone Community Advisory Group	<b>General Comments:</b> What are the physical and biological attributes that guided the rationale for determining the sampling locations?	EPA participated in the reconnaissance activities on July 24–26. As stated in the data quality objectives of the Work Plan, sample locations were selected to allow the risk assessment to address spatial patterns of chemical concentrations in the river and creeks, and to calculate incremental risks associated with the site, if any. The biological tissues for sampling were selected to facilitate evaluation of risk to the ecological receptors of concern to the BERA, and results will be used in assessment of exposures through ingestion of tissues of the organisms collected, or through evaluation of critical tissue residues of those organisms. Plans for recording and documentation of field data are presented in appendices. EPA and MDEQ personnel will be provided the opportunity to be present during all field collection activities.

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<b>CAG6</b>	Smurfit-Stone Community Advisory Group	<b>General Comments:</b> The maps should better identify publicly known geographical locations (especially towns, bridges, fishing access points) to better understand the locations of various sampling sites.	Comment noted. EPA will require PRP's to add additional details such as labels and geographic features to future maps. Please see Figure 1-1 of the BERA Data Gaps Work Plan.
<b>CAG7</b>	Smurfit-Stone Community Advisory Group	<b>General Comments:</b> Wakefield Kennedy chose not to pay taxes on parcel 865200 which may have the most contamination (especially in holding ponds 13 and 13a). Is there data that shows high levels of contamination within this parcel? If so, is intensive sampling focused within this area to determine what level of restoration may be needed? Worry continues that the sampling strategies have not thus far identified areas of most concern which may be fairly limited in size but could pose considerable risks in the future if not addressed. A buried transformer or barrel(s) containing solvents or other contaminants slowly rusting away would be possible examples. It has been suggested using metal detectors or other technology to identify these problems be pursued so site specific sampling can be done.	There are no data to date indicating that COPCs detected in Ponds 13/13a will impose unacceptable risk to human health or the environment.
<b>MTNRD1</b>	Jamie Holmes and Kaylene Ritter (Abt Associates; consultant for Montana Department of Justice, Natural Resource Damage Program)	<b>Previous Studies:</b> The summary of previous site investigations does not include a summary of the samples collected this year during the high water event in the Clark Fork River. This sampling detected elevated levels of dioxins and furans in a sample collected directly adjacent to the facility, compared to upstream samples, and dissolved metals concentrations that were above upstream concentrations and aquatic life criteria.	The text will be modified to mention the sampling, and the report will be referenced.  Please note that results of the 2015 sampling demonstrated that there was no significant difference between COPC concentrations, including dioxins, immediately upstream and downstream of the site. All samples were low and at background levels.

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<b>MTNRD2</b>	Jamie Holmes and Kaylene Ritter (Abt Associates; consultant for Montana Department of Justice, Natural Resource Damage Program)	<p><b>Proposed Sampling Locations:</b> Figure 3-1 shows 10 sampling locations in Lavalle and O’Keefe creeks, but only 5 locations will be sampled for surface water. It is unclear why only half the sites will include surface water collection, and how the contractors decided which locations to include.</p> <p>Figure 3-2 shows 20 sampling locations in the Clark Fork River (and one in the Bitterroot River) for surface water, sediment, and fish tissue. At the scale of the map in Figure 3-2, it is not possible to discern the specific sites that will be sampled. Appendix A of the Addendum states that “Fine grain sediments from depositional areas of the river will be targeted for sample collection. Sampling locations for sediment and water in the Clark Fork will be finalized during the reconnaissance visit in July, 2018” (p.8 of Appendix A). We agree that depositional areas should be targeted for sampling, though Appendix A should provide further detail on how these sites will be identified and selected, and we would like the opportunity to review the sites after the reconnaissance visit and ahead of field sampling.</p> <p>At six of the sites, no collection of fish tissue samples is proposed. It is unclear how the contractors decided which sites should include fish tissue samples and which should not. Moreover, most of the sites that will not include tissue collection are downstream of the mill site. If the goal of supplemental sampling is to evaluate the potential exposure of biota to site contaminants, tissue samples should be collected at all of the sample sites, particularly those sites downstream of the mill.</p> <p>It appears that the collection of macroinvertebrate tissue samples in the Clark Fork River is not proposed, yet Table 2.1 of the Addendum indicates that risk to fish will be assessed based on both tissue concentrations and dietary exposure through consumption of prey (invertebrates). If</p>	<p>Based on results from sampling in 2015, surface water chemistry is not expected to vary significantly across the spatial scale of the creek sampling areas.</p> <p>EPA will require PRP’s to add additional details such as labels and geographic features to future maps. Actual Geographical Information System (GIS) points were published in the BERA Data Gaps Work Plan appendix tables. These were provided to the sampling team, who will evaluate site conditions at each point for proper sampling criteria. Points may be relocated to some degree during sampling but a GPS point will be recorded at the new sample location and a Data Summary Report containing all the final sample locations will be provided. Unfortunately, due to time restrictions a second public review period will not be possible. EPA believes it is better to collect the data per the BERA Work Plan and address any potential data gaps that are revealed by the 2018 sampling event in the future.</p> <p>Based on prior sampling of Clark Fork River sediment and water, chemical contamination of Clark Fork River sediments and water is low, especially at and downstream of the site; see Sections 2.1 and 2.3 of the BERA Data Gaps Work Plan and review the September 2016 Preliminary Data Summary Report.</p>
<b>MTNRD2 (cont.)</b>			

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MTNRD2 (cont.)		<p>no macroinvertebrate tissue data will be collected in the Clark Fork River, how will the dietary exposure pathway be assessed? Macroinvertebrate samples should also be collected in the Clark Fork River to enable the assessment of fish dietary exposure pathways.</p> <p>Figure 3-3 shows 12 proposed sampling locations in the OU2 and OU3 ponds. It is not clear how or why the contractors selected this subset of ponds for data collection. The Addendum states, "The set of ponds selected for sampling is expected to capture the range of conditions that could drive ecological risks in the ponds" (p. 3-5). There are many areas of standing water in OU2 and OU3. It is unlikely that 12 samples will capture the range of conditions for potential risks. For example, the inundated area of Pond P5, a primary settling pond, covers more than 20 acres. More than one sample should be collected from this pond to adequately capture the range of conditions that would drive ecological risks.</p>	<p>Tissue samples to be collected in the Clark Fork River are located adjacent to former outfalls at the site, and in several places immediately downstream of the site, to enable perception of possible site-related tissue contamination if it exists. Multiple additional stations downstream will not serve this purpose.</p> <p>Multiple fish species present in the Clark Fork River, including bull trout (i.e., in Table 2-1), can be expected to prey on smaller fish, and longnose dace data will be useful for assessing risk of metals exposure to those species.</p> <p>As described in EPA's draft BERA Work Plan (February 2018), on p. 21, conservative models can be used to estimate prey tissue concentrations where empirical data are absent.</p> <p>EPA selected the ponds for sampling targeting the majority of the year-round water bodies within the property. The ponds selected represent a range of conditions because the history of each pond is well understood and a number of different functional types of basins are represented by the sampling design.</p> <p>EPA has requested that the PRPs collect a 5-point composite sediment sample rather than a single grab sample from each of the 12 on-site ponds identified for sampling. Water samples will not be composted.</p>

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MTNRD3	Jamie Holmes and Kaylene Ritter (Abt Associates; consultant for Montana Department of Justice, Natural Resource Damage Program)	<p><b>Surface Water Sampling:</b> The contractors propose collecting 1-liter grab samples from the upper third of the water column for the analysis of dioxins and furans. This is unlikely to adequately characterize potential exposure, particularly in the ponds. First, dioxins and furans are toxic at very low concentrations, and toxic effects levels can be lower than detection limits. Previous sampling events have shown that the detection limit from a 1-liter sample may not be low enough to adequately characterize exposure. Second, surface water can be a pathway to biota, with dioxins and furans accumulating in exposed biota to deleterious levels, even if the concentrations in the surface water are very low.</p> <p>For these reasons, the contractors should consider deploying passive sampling devices to better characterize exposure to dioxins and furans, in addition to collecting surface water grab samples. There are numerous examples of these devices that have been developed specifically for characterizing hydrophobic persistent organic pollutants such as dioxins and furans, including polyethylene- and triolein-based semipermeable membrane devices (SPMDs), polydimethylsiloxane (PDMS)-based solid-phase microextraction (SPME) devices, and polyoxymethylene (POM) devices (Burgess et al., 2015; Lohmann, 2015). These passive samplers typically reach equilibrium within one to two months after deployment (Lohman and Muir, 2010; Lohmann, 2015). The contractors are deploying peepers for four weeks to analyze porewater metals; they could likewise deploy passive samplers for four weeks, preferably in both the ponds and the Clark Fork River. The data would likely provide a far better determination of potential exposure to and risk from dioxins and furans at and near the mill site.</p> <p>The Addendum suggests that the contractors have concluded <i>a priori</i> that metals present in surface water</p>	<p>EPA believes that sampling per the Work Plan and at the specified locations and frequency will be sufficient to provide additional information for the BERA.</p> <p>Dioxins are more likely to be associated with tissue (due to bioaccumulation), and sediments (due to binding by dioxins with sediment organic carbon) than to be present in surface water (due to low solubility). Assessment of exposure of wildlife foraging in ponds will include all three of these media, but the dose from water is expected to be small relative to the doses from food and sediment ingestion, for these reasons. Dioxins in both tissue and sediment will be measured in each pond to be sampled. Further, if a dioxin congener is not detected in water, a conservative method is used by EPA to estimate the concentration. The method to estimate TEQ for water, and the ingested dose by wildlife from water, is conservative.</p> <p>Section 3 of the BERA Data Gaps Work Plan states that an objective of the plan is to <i>evaluate potential controls on bioavailability</i>. Such controls include factors that may make metals more bioavailable (low pH) as well as less bioavailable (high organic carbon). The text of the work plan does not presume an answer to the evaluations.</p> <p>The text of Section 3 will be modified to clarify that the EPA's BERA Work Plan, and the BERA Data Gaps Work Plan, will lead to multiple lines of evidence that can be used to address each risk question.</p>

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		<p>have limited bioavailability. They suggest using the biotic ligand model (BLM) and possibly other models to assess bioavailability. Several studies have shown that the BLM often under-predicts toxicity. For example, Fulton and Meyer (2014) showed that the BLM under-predicted copper toxicity to fathead minnows by more than a factor of two. Given the inherent uncertainty associated with bioavailability models, they should not be relied upon exclusively to assess toxicity. If bioavailability is suspected to play a significant role in reducing the toxic effects of metals, then additional data may need to be collected to confirm this. For example, site-specific toxicity tests may be needed to confirm the modeled predictions. This could involve laboratory tests conducted with site water, sediment, and biological species found at the site. Models that under-predict toxicity should not be used to obfuscate the potential risk to biota.</p>	
<b>MTNRD4</b>	Abt Associates (consultant for Montana Department of Justice, Natural Resource Damage Program)	<p><b>Sediment Sampling:</b> To sample sediments in the 12 selected ponds in OU2 and OU3, the contractors propose collecting a single sample using a Ponar-type sampler, which would collect sediment from the upper 15 cm of sediment. It is not clear whether this single sample is intended to represent the ecological risk for the entire pond from which it came, as well as ponds nearby that are not sampled. As noted previously, a single sample is unlikely to sufficiently characterize the range of ecological risks from larger ponds and from the unsampled ponds nearby. In larger ponds, the number of samples should be increased. The contractors should consider a stepwise approach, where the initial samples are collected using a grid with a consistent cell size, and additional targeted sampling will follow in locations where the data suggest elevated risks.</p>	<p>For this Work Plan sediment sampling methods will remain consistent with previously collected sediment collections for the RI. Each sample has been selected to represent a single pond and not duplicate or adjacent ponds. Not every pond on site is being sampled, however the majority of those holding water year-round and those along the CFR berm are being sampled. EPA is still in the process of determining risks at the site. The 2018 sampling event will provide information for making risk-based decisions for future sampling. Potential data gaps may be revealed and additional sampling for contamination may occur. Detailed characterization of any identified site contamination sources will occur as part of the Remedial Action.</p>

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<b>MTNRD5</b>	Jamie Holmes and Kaylene Ritter (Abt Associates; consultant for Montana Department of Justice, Natural Resource Damage Program)	<p><b>Porewater Sampling:</b> Porewater sampling is proposed only for the 12 sample locations in the OU2 and OU3 ponds, and the contractors will only examine metals. Porewater in Clark Fork River sediments adjacent to the mill site may reveal contaminants present in upwelling groundwater that would not be detected in overlying surface water samples. Also, contaminants of concern other than metals may also be present in porewater, including dioxins and furans.</p> <p>As noted previously, we recommend that the contractor deploy SPMDs when they deploy peepers for four weeks. We recommend that SPMDs be deployed in the Clark Fork River in addition to the onsite ponds.</p> <p>The porewater sampling will include data both from peepers and from PushPoint samplers. If the data from these two distinct methods are not in agreement, which data set will be relied upon to estimate risk? Cleveland et al. (2017) found that at low metal concentrations, PushPoint sampling resulted in up to 100 times higher concentrations of metals and dissolved organic carbon in porewater compared to peepers. If a similar disparity occurs in any of these samples, how will risk be evaluated? The Addendum should describe how the results from the two sampling methods will be analyzed in the assessment of risk, particularly in the instance of large disparities in results.</p> <p>In addition, we note that the description of the porewater analysis implies that risk to macroinvertebrates will only be assessed based on dissolved metals concentrations in pore water, and that sediment concentration data will not be considered. "Because the capacity of the sediments in each pond to bind metals or to compete with metals for binding sites on the organisms is unknown and likely spans a range across the variety of ponds on the Site, the most direct approach to understanding the potential</p>	<p>Sediment concentration data will be used to help assess risk to macroinvertebrates.</p> <p>EPA cannot speculate on the differences that might be found between method results after sampling occurs. If data is obtained that does not meet quality criteria, then it will be rejected. Further, the performance of this study does not preclude the performance of additional studies in the future, if site-related uncertainties warrant further data collection.</p>

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		<p>toxicity of the pond sediments is through direct measurement of metals in sediment porewater" (p. 3-6).</p> <p>First, no sources are cited to support the statements regarding the macroinvertebrate exposure mechanisms (sediment vs porewater ingestion). Second, while there is a large body of literature providing sediment toxicity reference values (TRVs) for macroinvertebrates, there are comparatively few studies reporting macroinvertebrate TRVs for porewater, and hence the ability to interpret porewater data may be more limited. Finally, if the contractors believe that the binding capacity of the sediment is highly uncertain, they should conduct site-specific sediment toxicity tests.</p>	<p>The discussion of potential exposure pathways and routes in section 2 reflects EPA's conceptual site model (CSM) for ecological exposures in their most recent BERA Work Plan draft. Those CSMs are included as Appendix C, and the BERA Data Gaps Work Plan will be modified to cite EPA's BERA Work Plan in connection with the statements referenced in this comment.</p>
<b>MTNRD6</b>	Jamie Holmes and Kaylene Ritter (Abt Associates; consultant for Montana Department of Justice, Natural Resource Damage Program)	<p><b>Tissue Sampling:</b> The contractors are proposing to collect macroinvertebrate, fish, and small mammal tissue samples as a part of the proposed sampling.</p> <p>The Addendum describes collecting fish (specifically longnose dace) tissue samples, using backpack electroshockers. As noted above, tissue samples should be collected from all the proposed sampling locations, including the six locations downstream of the site that the contractors are currently proposing not to sample. Further, if the contractors are deploying teams with backpack electroshockers to capture longnose dace in the Clark Fork River, they should consider multiple-pass depletion methods to quantify fish community, density, and catch per unit effort. These additional data can be collected with minimal extra effort and can help with the evaluation of potential impacts from this site.</p> <p>Collecting tissue samples may inform dietary exposure to biological receptors that eat fish, but it may be of limited value in assessing effects to the fish themselves. Many contaminants, including metals, can cause deleterious effects to fish without necessarily accumulating in their</p>	<p>Benthic infauna in ponds are not expected to move around large areas during their aquatic stage. Longnose dace was selected for their small home range. The small exposure areas of the targeted tissue types were considered in planning the study to minimize the concern stated here.</p> <p>Fish density and catch per unit effort will not be used as measurement endpoints in this ecological risk assessment. EPA believes that the data needs described in Addendum 9 should provide sufficient information to conduct the BERA. EPA will not pursue collection of fish community metric data for this investigation.</p>



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		<p>tissues. Therefore, collecting these additional community metric data could provide important data in the characterization of ecological risk. Macroinvertebrate community metrics (relative abundance, diversity) should also be collected, for similar reasons.</p> <p>The Addendum states, “The absence of statistical correlations between bulk sediment chemistry and tissue chemistry may indicate the presence of conditions not attributable to hazardous substances that may limit or amplify bioaccumulation of chemicals from sediments, which can also inform long-term management of the Site” (p. 3-5). The absence of statistical correlations between bulk sediment and biological tissue samples might also signify that biota were exposed to mill site contaminants in a location other than the specific location where the sediment sample was collected. Conclusive statements about the origins or bioavailability of site contaminants are not justified, based on only a handful of samples that are supposed to characterize risk in hundreds of acres of ponds and many river miles in the Clark Fork River.</p> <p>Further, the Addendum states, <i>“The absence of a spatial pattern, or a pattern in which upstream fish tissue concentrations exceed or are equal to concentrations in fish adjacent to and/or downstream of the Site, will be interpreted to indicate that the Site is not a significant source of the constituent to the aquatic food web of the Clark Fork River”</i> (p. 3-11). A conclusion about the source of contamination must incorporate additional factors, such as the possibility that site contaminants were transported upstream of the mill via stack emissions, or that fish are mobile. As such, the absence of a pattern or any measurements of upstream fish tissue concentrations that exceed or are equal to concentrations in fish downstream of the site may instead indicate that the upstream locations are not representative of background conditions,</p>	<p>Water chemistry can be used to assess risks to fish where empirical data for their prey tissue chemistry are lacking.</p> <p>EPA is still determining the area that has been historically influenced by the Site. Data collected to date do not support the proposition that there was extensive aerial deposition because of past operational practices and the lack of contamination in near site sample locations and background samples from other sites located in Missoula.</p> <p>If commenters are aware of published studies indicating that the mill was a source of aerial deposition of contaminants over a wide area they are encouraged to provide it.</p> <p>The adverse effects to birds of sampling their eggs, which guarantees the mortality of the eggs sampled, is not currently warranted by</p>

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		<p>and are therefore not appropriate reference locations for the site.</p> <p>Finally, this supplemental tissue sampling does not include avian tissue samples. There is substantial evidence that dioxins and dioxin-like-compounds (DLCs) cause adverse effects to birds at very low concentrations, with sensitive endpoints such as reduced visual acuity, cardiac malformations, reduced reproduction, and growth (see, for example, Cohen-Barnhouse et al., 2011; Ottinger and Dean, 2011; Carro et al., 2013). For the purposes of the BERA, avian egg tissue data could be collected in the vicinity of the site, with contaminant concentrations compared to literature-based egg TRVs for DLCs.</p>	<p>the conditions to-date that have been documented to exist on the site.</p>
<b>MTNRD7</b>	Tom Mostad (Montana Department of Justice, Natural Resource Damage Program)	<p><b>Figures 3-1, 3-2 &amp; 3-3:</b> The areas identified as sampling locations are large and not presentative of the actual locations that will be sampled. For example, the sampling location identifiers (orange circles) in Figure 3-1 are 250-foot diameter circles, in Figure 3-2 are 1,340-foot diameter circles and in Figure 3-3 are 280-foot diameter circles. Thus, the sample collectors will have to make some decisions within the locations as to the precise sampling locations. How will the precise sampling locations be determined, what criteria will be used, or is there a decision matrix to select the precise locations to ensure the goals for each sampling media is met?</p>	<p>Maps of large areas include dots sized for visibility. Geographic coordinates for final sampling locations will be presented in Appendix A and Appendix B, and these will be used by field teams to navigate to sampling locations. Please review past reports to understand the relationship between the GIS location and data has been presented in the past.</p> <p>Final sampling locations for the Work Plan were selected by PRP contractors in collaboration with EPA during the field reconnaissance visit conducted July 24, 25, and 26, 2018. Actual Geographical Information System (GIS) points are presented in tables in the appendices, and were provided to the sampling team, who will evaluate site conditions at each point for proper sampling criteria. Points may be relocated to some degree during sampling but a GPS point will be recorded at the new sample location and a Data Summary Report</p>

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			containing all the final sample locations will be provided.
<b>USFWS1</b>	David Rouse (U.S. Fish and Wildlife Service)	Since ponds located on-site may have had different historical uses and heterogeneous geochemistries, collecting multiple discrete sediment samples within individual ponds as opposed to the collection of a single discrete sample per pond may provide a more accurate dose estimate for those ecological receptors that incidentally ingest sediments, particularly small home range receptors.	<p>Because of the way the ponds were utilized, EPA anticipates that the sediment conditions will be fairly homogeneous within any individual pond. Further, because only wetted areas of the former basins will be sampled as part of this program, sediments to be collected are within the deepest parts of the basins formerly used by the mill. As a result, these areas would be the most likely to contain chemicals generated by the mill processes. If unacceptable risks are found, additional sampling will be considered.</p> <p>No changes to the BERA Data Gaps Work Plan are recommended at this time.</p>
<b>USFWS2</b>	David Rouse (U.S. Fish and Wildlife Service)	For table 1-1, grizzly bear is a federally-listed threatened species.	This species is shown in the Table 1-1
<b>USFWS3</b>	David Rouse (U.S. Fish and Wildlife Service)	In addition to fish, benthic macroinvertebrates are also prey to a variety of ecological receptors using the Clark Fork River (CFR), so benthic macroinvertebrate samples co-located with fish tissue samples in the CFR would improve the ecological risk estimate, as well any effort to establish predictive relationships between contaminants in the environment and concentrations detected in CFR fish tissue.	<p>EPA will evaluate the need for an additional background study for the site. If needed, the study would occur next sampling season and could include additional upgradient sample locations.</p> <p>Fish and in particular the longnose dace were selected for sampling because they provide a consistent representation of a certain position in the river food web. Longnose dace is expected to represent a secondary or tertiary consumer, potentially exposed to chemicals</p>

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			through ingestion of prey, incidental ingestion of fine sediments, algae, fungi, and bacteria associated with rocky substrates, thereby integrating several exposure media. Because of the likely consistency of their habits across the longitudinal extent of the study area, and their trophic position, patterns of contamination in tissue will be informative about contaminant sources. They are also prey to several selected receptors, or provide a conservative representation of prey. The Data Gaps Work Plan describes a cost-effective approach to address the most immediate uncertainties and address threshold questions about whether the site is affecting the river, and if so where.
<b>USFWS4</b>	David Rouse (U.S. Fish and Wildlife Service)	The Service supports many of the proposed CFR fish tissue sampling locations like 51-CFR, 52-CFR, and 63-CFR that will represent important foraging and cold water refugia locations for some sensitive fish species; however, moving or adding sites farther downstream (e.g. St. Regis) and upstream (e.g. Blackfoot River) may improve the characterization of the nature and extent of contamination.	EPA currently does not plan to extend this sampling program further downstream. If sample data from this 2018 event presents additional questions and data gaps, then additional sampling may be warranted to determine full extent of contamination.
<b>USFWS5</b>	David Rouse (U.S. Fish and Wildlife Service)	Similar to the principal study questions for the creeks that propose to compare tissue, sediment, and surface water concentrations to background, could these same study questions be included for pond sites (i.e., on-site pond concentrations vs background pond concentrations) or is there a justification for not including background pond sites?	Risks associated with the on-site ponds will be evaluated but additional data may be necessary from offsite or OU1 ponds to establish true background conditions. Text will be added to Addendum 9 to better explain this rationale.
<b>JH1</b>	Jen Harrington	I am left with more questions than answers after reading through the document. The trustees have repeatedly suggested sampling methods and locations which have scientific merit, yet New Fields and the EPA continue to	The Agency believes that the sampling plan collected the necessary data to complete the human health and ecological risk assessments for the site.

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		<p>compose sampling plans that are ineffective and lack rigor.</p> <p>The issues that concern me are: background sample locations, what is not being sampled, who is sampling fish, the use of North Carolina source (1987) for determining Longnose Dace habitat, and sampling location determination.</p>	<p>Please see the USFWS Longnose Dace Habitat Suitability Index document which synthesizes the literature on longnose dace habitat usage from many parts of its range and describes common features of its habitat where it is found.</p>
<b>JH2</b>	Jen Harrington	<p>Background sampling needs to be taken outside the area of influence.</p> <p>Dioxin has been found on site and sampling for it needs to continue.</p> <p>FWP has suggested sampling in the Blackfoot near Greenough, Bitterroot near Lolo and Florence, the Clark Fork near Clinton, East Missoula, and St Regis for background.</p> <p>The EPA and PRP's have an opportunity to listen, include, and incorporate the recommendations given by the community and the Trustees, to facilitate a full restoration of the site.</p>	<p>Data collection from Addendum 9 will provide information that will help determine risks and if other data, such as determination an area of influence, may need to occur.</p> <p>Dioxins and furans will be analyzed in tissue, sediment, and surface water sample collected in the study as described in the BERA Data Gaps Work Plan.</p> <p>EPA will evaluate the need for an additional background study for the site. If needed, the study would occur next sampling season and could include additional upgradient sample locations.</p> <p>EPA as always appreciates input from the communities and Trustees and continues to incorporate public input when applicable and appropriate. EPA's priority for the Site is protection of human health and the environment following the remedial process.</p> <p>Any restoration of the site will need to be pursued through other appropriate mechanisms.</p>

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<b>MVWQD-Letter1</b>	Travis Ross (Missoula Valley Water Quality District)	Hydraulic Connection Between Ponds and Clark Fork River: It is almost certain that there is or has historically been, a hydraulic connection between the ponds and surface water, especially since the ponds were originally designed to discharge to the river. Failure to accurately identify the groundwater / surface water connection is one of the largest data gaps at the site. A ground water / surface water interaction study should be conducted to determine details including but not limited to: the extent of the connection, seasonal affects, gaining vs. losing reaches, site geologic units that may be acting as migration pathways, and how these issues may affect contaminant migration at the site.	<p>Hydraulic connections from the river to the ponds were observed during the 2018 high flow event. EPA agrees that this hydraulic connection exists, however it is not the objective of the Ecological Risk Assessment sampling to determine this connection. E</p> <p>Existing Site groundwater studies identify hydraulic properties of the shallow and deep aquifers. Evaluation of connectivity between the Site and the river is ongoing. Surface water data collected in 2018 may be used as a line of evidence to address this concern.</p>
<b>MVWQD-Letter2</b>	Travis Ross (Missoula Valley Water Quality District)	<p>Historical Impacts: Addendum 9 does not fully consider the potential historic impacts and loading from an era when the mill was in operation. While it is most likely true that the hydraulic head in the ponds are currently low for most of the year, this most certainly was not always the case. When the mill was in operation, the ponds were likely bank full.</p> <p>During these times, there were likely positive hydraulic gradients from the ponds to the river. For this reason, stream bank sediment sampling should be a key component of this addendum in order to fulfill data quality objectives designed to establish a complete ecological risk assessment. Stream bank sediments are mobilized and in direct communication with both surface- and groundwater and offer complete pathways for exposure to ecological receptors.</p>	<p>The purpose of a baseline ecological risk assessment is to define risks under current conditions. A BERA is used to define potential risks and support a determination of whether a remedy is needed or not. As such, the BERA properly reflects current, not past, conditions.</p> <p>Soil samples taken from berm materials as part of the Addendum 6 Berm Geotechnical Investigation were analyzed for contaminants of concern. No contaminants above screening levels were found in the berm samples. Addendum 9 <u>does</u> collect sediment samples in the Clark Fork River. These samples will be used to determine if contamination is moving from the site to the river.</p>

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<b>MVWQD-Letter3</b>	Travis Ross (Missoula Valley Water Quality District)	<p>Sample Locations/Distributions: The current plan lacks sufficient sample density on the Smurfit-Stone site when compared off-site locations. There are 7 upgradient sample locations, 11 downgradient samples locations, but only 3 locations within the reach of the site along the Clark Fork. The investigation seems to place more emphasis on conditions in the Clark Fork River, particularly upstream of the site, than it does on conditions on the site. The locations do not appear to support the stated objective of the investigation which is to fill data gaps, such that ecological risks associated with the site can be assessed. While background conditions are an important part of any risk assessment, they should not be the primary focus. The extent, fate and transport, and primary exposure pathways of the on-site contaminants of concern should be the primary focus of the data gap investigation, not background contributions from upstream sources.</p>	<p>EPA believes the sampling plan is sufficient to close many of the data gaps identified by results of the initial BERA sampling and the RI sampling. Background conditions have yet to be fully identified and Addendum 9 data will provide valuable information that will be used for making decisions regarding any necessary future sampling and whether or not the current plan is sufficient.</p>
<b>MVWQD-Letter4</b>	Travis Ross (Missoula Valley Water Quality District)	<p>Sampling Approach: The randomized, discrete sampling approach is not the appropriate method for sampling fluvial sediments and pore water. A more systematic approach should be implemented; we recommend a transect approach. A high density sampling transect approach, particularly in the proximal areas located adjacent-to and immediately downgradient of the site will provide the sampling resolution necessary to identify the extent of the sources and exposure routes for contamination emanating from on-site and off-site sources. Transects should be established beginning at the ponds, and bank and bed sediments should be collected at selected locations along the transects. Co-located surface water, ground water, pore water, and tissue samples should be collected during the same event.</p>	<p>EPA scientists are not using a random approach and will not modify proven and defensible procedures by revising their methodology. Please review the RI Work Plan and related documents attached to the AOC.</p> <p>Transects will not be considered for Addendum 9 sampling.</p>

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<b>MVWQD-Letter5</b>	Travis Ross (Missoula Valley Water Quality District)	Sampling Rationale: Some sample sites have various media being collected at each site (sediment and water, sediment, tissue and water, etc.). Please provide rationale for the selection of sample media at each site. Additionally, more pond samples should be collected, particularly those with historic evidence of receiving contaminated media as well as those adjacent to the Clark Fork River.	Sample locations were decided upon by EPA, in consultation with DEQ, and the PRPs conducting the work. Depositional areas were selected for sediment and invertebrate collection. Shallow riffles were selected for small fish collection. The majority of on-site ponds that contain water year-round are proposed for sampling. While a few ponds with water may not be sampled, EPA believes that current sampling represents all scenarios of pond usage. Section 3 of the BERA Data Gaps Work Plan provides rationale for the study design.
<b>MVWQD-Letter6</b>	Travis Ross (Missoula Valley Water Quality District)	Variability of Data: There are inherent variability in sediment data. Contaminant concentrations can change significantly depending on where the sample is collected, and at what depth. The work plan as written, does not appear to take the inherent variability of sediment data in consideration. Sediment sampling transects located perpendicular to flow should be considered to account for variability.	EPA cannot predict sample variability. While transects may present the data in a line, EPA believes that any line through the river would be arbitrary and is not beneficial to the sampling objectives.
<b>MVWQD-Letter7</b>	Travis Ross (Missoula Valley Water Quality District)	Statistical Significance: The frequency and total number of samples does not seem to be of sufficient quantity to have achieve statistical significance; as a result, more sampling locations are recommended on the Smurfit-Stone site.	EPA believes that completion of Addendum 9 sampling will improve statistical significance to the point where informed decisions can be made. If additional questions and data gaps arise, then additional sampling may occur.
<b>MVWQD-Letter8</b>	Travis Ross (Missoula Valley Water Quality District)	Seasonal Variability: The current sampling plan does not account for seasonal fluctuations typical in stream side environments in Montana. Additionally, how will the abnormally high flow events in 2018 affect sample results. Recommend a semi-annual, or quarterly sampling program.	Comment noted. EPA/DEQ are still trying to understand the seasonal variability in groundwater within the site.  Semi-annual or quarterly sampling for fish, macroinvertebrates, sediment and surface water is unprecedented except at the most contaminated of sites. Given the low levels of



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			contaminants found at the site EPA/DEQ believes adequate data can be obtained following the current plan. Additional sampling may be necessary based on results.
<b>MVWQD-Letter9</b>	Travis Ross (Missoula Valley Water Quality District)	Other Data Gaps: Have non-contact cooling water ditches, sewer infrastructure, and other utility conduits been accurately identified and sampled?	The non-contact cooling water ditch will be sampled as part of Addendum 9. No other utility conduits have been identified for sampling.
<b>MVWQD-Matrix1</b>	WET Consulting (through MVWQD)	General: Some sites have various media being collected at each site (sediment and water, sediment, tissue, and water, etc.). Please provide the rationale for the selection of these different media.	Sample locations were decided upon by EPA, in consultation with DEQ and the PRPs conducting the work. Depositional areas were selected for sediment and invertebrate collection. Shallow riffles were selected for small fish collection. The majority of on-site ponds that contain water year-round are proposed for sampling.
<b>MVWQD-Matrix2</b>	WET Consulting (through MVWQD)	General: The District feels adequate evaluation of landfills and groundwater remains a data gap Groundwater flux between groundwater and landfills remain a data comment	Groundwater monitoring (in accordance with Addendum 8 to the RIWP) in and around the existing landfills and across the site will continue.
<b>MVWQD-Matrix3</b>	WET Consulting (through MVWQD)	General: Depth of sampling (<1 ft.) seems to discount deeper contaminants that could be contaminating ground water, which may leach to surface water.	Addendum 9 sampling focuses on soils and water where most biological life occurs. Sampling will occur from 0-6 inches.
<b>MVWQD-Matrix4</b>	WET Consulting (through MVWQD)	No Comment	No Response
<b>MVWQD-Matrix5</b>	WET Consulting (through MVWQD)	General: Addendum 9 activities will not provide adequate data for nature and extent of contamination.	EPA agrees that full nature and extent may not be achieved through Addendum 9. Along with e 2014 – 2017 data, the 2018 Addendum 9 data will provide additional useful information that will determine any

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			additional data needs if data gaps are identified.
<b>MVWQD-Matrix6</b>	WET Consulting (through MVWQD)	Background Data: Document indicates 10 sample locations for surface water and sediment. How do these locations compare to proposed locations and how will the two data sets be used?	All historic sample locations and results have been provided to the public and are available for review. New upstream sample data will be reviewed and if appropriate, used in conjunction with existing background data. Tables are presented in the BERA Data Gaps Work Plan that summarize data quality objectives, including potential uses of the data generated by the study described.
<b>MVWQD-Matrix7</b>	WET Consulting (through MVWQD)	Section 1.2.2: OU3 is used for cattle grazing, has biological testing of cattle been considered?	EPA has not addressed this concern at this time. Full understanding of any contamination in sediments, insects and small mammals will precede if larger mammal testing is necessary.
<b>MVWQD-Matrix8</b>	WET Consulting (through MVWQD)	Section 1.2.1: The non-contact cooling water ditch that runs along the western border of OU2 may contain contamination, however, no samples are planned in this waterway. Has previous sampling characterized this area?	The non-contact cooling water ditch will be sampled as part of Addendum 9 (Sample ID 70-CWD).
<b>MVWQD-Matrix9</b>	WET Consulting (through MVWQD)	Section 2, pp. 2-2: This paragraph introduces data gaps identified from historical document reviews, but does not identify them. Please list the specific data gaps identified by the review.	Please refer to EPA's DRAFT BERA Work Plan (March 2018) for description of BERA data gaps.

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<b>MVWQD-Matrix10</b>	WET Consulting (through MVWQD)	Section 2, pp. 2-2: EPA does not define human health risks as acceptable or unacceptable, particularly for carcinogens such as chlorinated dioxins & dibenzofurans. Please reword to reflect conventional EPA language throughout the document. Concentrations are not expected to cause a deleterious health effect.	Comment noted. The public will be allowed to review the next draft of the HHRA and provide comments.
<b>MVWQD-Matrix11</b>	WET Consulting (through MVWQD)	Section 2.1, pp. 2-2: Please provide figure of previously sampled locations in relation to proposed sampling locations	All previously sample locations are provided in previous data summary points. Geographical coordinates of all sample locations are provided with site sample results.  The data summary report produced for the Addendum 9 study will include maps as requested here.
<b>MVWQD-Matrix12</b>	WET Consulting (through MVWQD)	Section 2.1, pp. 2-2: 1. Please provide more detail defining what 'comparable' to background represents. 2. Please define which location exhibited measurable Aroclor 1221 concentrations and describe the likely source of the PCB detection? What did sampling below this site indicate? 3.How does 2018 high water sampling factor into this discussion? 4. Appears to be minimal surface water sampling from the site.	Background information is still being collected and full background conditions are not fully understood at this time. Results of 2015 sampling are presented in the 2016 Preliminary Data Summary Report (NewFields, 2016).  All historic sample locations and results have been provided to the public and are available for review.  All 2014-2018 validated data will be used to support the HHRA, BERA and the RI report.
<b>MVWQD-Matrix13</b>	WET Consulting (through MVWQD)	Section 3.0: The investigation seems to place more emphasis on conditions in the Clark Fork River than it does on conditions on the site. The stated objective of the investigation is to fill data gaps, such that ecological risks associated with the site can be assessed, yet, the overwhelming majority of critical samples are planned for locations outside of the site boundary, in the Clark Fork River. Sampling should have greater focus on-site.	For the purposes of the BERA, sample density on site has been addressed. Additional data gaps have been identified. The Addendum 9 sampling also addresses those data gaps. No additional on-site sampling is proposed for Addendum 9.

<b><u>Comment ID</u></b>	<b><u>Reviewer</u></b>	<b><u>Comment</u></b>	<b><u>Response</u></b>
<b>MVWQD-Matrix14</b>	WET Consulting (through MVWQD)	Section 3.0: Surface Water - Minimal pond locations are identified, more ponds samples should be considered, however, it is unclear if any have been previously sampled. Should be collecting discrete samples at different depth, lithologic layer to determine full impact of ponds.	<p>Addendum 9 presents a plan for collecting data relevant to the ecological risk assessment, it is not intended to address all questions related to the site.</p> <p>The majority of year-round ponds on site are being sampled.</p> <p>All historic sample locations and results have been provided to the public and are available for review.</p>
<b>MVWQD-Matrix15</b>	WET Consulting (through MVWQD)	Section 3.0: More concentrated data collection from LaValle and O'Brien creeks will provide a more complete representation of ecological risks within the site boundary, the primary objective of the investigation. These creeks cross the site, and while they are currently up- or cross-gradient from former mill operations, the hydraulic gradient would have been different when the mill was operating and ponds were bankfull.	<p>EPA has evaluated existing data (from 2015 sampling) for the creeks in the OU1 ecological risk assessment. EPA found that concentrations of COPCs did not exceed background or did not indicate unacceptable risks (USEPA 2017). Data collected under Addendum 9 will augment that evaluation.</p> <p>EPA believes sample density within LaValle and O'Keefe creeks is sufficient to supplement the BERA data and will help determine if additional data is needed.</p>
<b>MVWQD-Matrix16</b>	WET Consulting (through MVWQD)	Section 3.1" Why isn't the entire water column being classified, why only the upper 1/3? Is there temporal water quality data that supports this approach?	<p>Sampling water from the upper third of the water is not an uncommon approach. It is expected that in most systems, this will be representative of the entire water column, and was selected to avoid potentially disturbing sediments near the sediment-water interface, resulting in a more representative sample. EPA has no reason to believe that contaminant concentration would vary significantly within the water column of these relatively shallow water bodies. Sediments and (pond) porewater will also be collected. EPA feels that the entirety of this data will be</p>

<b><u>Comment ID</u></b>	<b><u>Reviewer</u></b>	<b><u>Comment</u></b>	<b><u>Response</u></b>
			sufficient to supplement the BERA data and will help determine if additional data is needed.
<b>MVWQD-Matrix17</b>	WET Consulting (through MVWQD)	Section 3.1 - Page 3-3: Biotic Ligand Model not approved in MT - Total metals standard exists	Comment noted. The Biotic Ligand Model is just one tool used to help understand the data. Total metals is also report and it too is used as a tool to better understand the data and the data relationship to human health and the environment.
<b>MVWQD-Matrix18</b>	WET Consulting (through MVWQD)	Section 3.1: Please add additional rigor to the sampling program for Lavalley and O'Keefe Creeks. Because the sampling program is meant to evaluate ecological risks, particular emphasis should be placed on the collection of samples along the extent of both creeks, up and downstream because of their presence on the site, and the likelihood they have been more impacted by onsite migration of site-related chemicals than the larger flowing rivers. Additional sampling locations should be added across the creek for surface water if the stated objective of determining the nature and extent of contamination is to be achieved.	Comment noted. EPA believes sample density within LaValley and O'Keefe creeks is sufficient to supplement the BERA data and will help determine if additional data is needed.
<b>MVWQD-Matrix19</b>	WET Consulting (through MVWQD)	Section 3.2, page 3.3: 0-6" depth does not seem adequate for characterization, especially of soil/sediment contact with ground water. Ponds were used for over 50 years in various capacities. Depth of wastes not characterized, significant changes could be present between ponds, as well as within the same ponds.	Addendum 9 sampling is focusing on strata where most receptor organisms will be in contact with possible contamination.
<b>MVWQD-Matrix20</b>	WET Consulting (through MVWQD)	Section 3.2: Please add additional rigor to the sampling program for Lavelley and O'Keefe Creeks. Because the sampling program is meant to evaluate ecological risks, particular emphasis should be placed on the collection of samples along the extent of both creeks, up and downstream because of their presence on the site. Special	Comment noted. EPA believes sample density within LaValley and O'Keefe creeks is sufficient to supplement the BERA data and will help determine if additional data is needed.

<b><u>Comment ID</u></b>	<b><u>Reviewer</u></b>	<b><u>Comment</u></b>	<b><u>Response</u></b>
		emphasis should be placed on sediment sampling for this effort, if a correlation between small mammals, fish, and benthic invertebrates is to be established, as the majority of the uptake they will experience will be from sediments. Additional sampling locations should be added across the creek for sediments if the stated objective of determining the nature and extent of contamination is to be achieved. At a minimum, the sample density for sediments should mirror the density being proposed along the Clark Fork River as the conditions onsite should outweigh the offsite evaluation when evaluating risks. Need sample points along Sludge 17, Pond 1, and Pond 1A.	
<b>MVWQD-Matrix21</b>	WET Consulting (through MVWQD)	Section 3.2: Nature and Extent evaluation: Please explain how concentrated sampling toward the mouth of the creeks improve or support spatial coverage of contamination?	Samples from the mouths of creeks on site will provide nature of contaminants potentially migrating from the site.
<b>MVWQD-Matrix22</b>	WET Consulting (through MVWQD)	Section 3.3: This section notes no surface hydrologic connection to the Clark Fork for ponds. This is not supported anywhere in this document. Has it been demonstrated elsewhere? The ponds were inundated with groundwater and we believe are in direct communication seasonally with groundwater. Given that groundwater is infiltrating the ponds, it seems unlikely there is no connection to the rivers.	<p>Comment noted. Hydraulic connections from the river to the ponds were observed during the 2018 high flow event. EPA agrees that this hydraulic connection exists, however it is not the objective of the Ecological Risk Assessment sampling to determine this connection.</p> <p>Results of the porewater sampling may also help to better understand the hydraulic connections.</p> <p>Existing Site groundwater studies identify hydraulic properties of the shallow and deep aquifers. Evaluation of connectivity between the Site and the river is ongoing. Surface water collected in 2018 may be used as a line of evidence to address this concern.</p>

<b><u>Comment ID</u></b>	<b><u>Reviewer</u></b>	<b><u>Comment</u></b>	<b><u>Response</u></b>
<b>MVWQD-Matrix23</b>	WET Consulting (through MVWQD)	Section 3.3: Has there been any evaluation of ground water-surface water interaction at the site? Previous documents state that the river was moved west when previous ponds were construction. This statement, as well as the site's proximity to the river and presence within the 100-year floodplain, suggest that there is likely significant connection between ground water at the site and the river. Has the potential for ground water discharging to surface water been addressed? Is this reach gaining or losing? Are there seasonal variations? The potential for contaminated ground water discharging to surface water should be addressed.	Please review historic operational documents and EPA RIWP groundwater sampling data to better understand current groundwater/surface water relationships. Groundwater/surface water relationships are reported in NewFields June/July 2017 Groundwater Monitoring Report, and the December 2017 GW Monitoring Report.
<b>MVWQD-Matrix24</b>	WET Consulting (through MVWQD)	Section 3.4.2: The macro-invertebrate sampling along Lavalle and O'Keefe Creeks is more systematic for onsite evaluations than other media (e.g. sediment, surface water) and should provide representative data for these species. Increased rigor in the sediment and surface water sampling should provide a better understanding of the effects on local species. However, fish tissue sampling planned for this effort are all from the larger river system. Why? Are the fish species of interest not present in these creeks? This data would help to complete the profile of impacts and local species uptake from onsite sources within the onsite streams.	EPA feels that the benthic macroinvertebrates from on-site creeks and ponds will be sufficient to meet the data quality objectives of Addendum 9. These new data will supplement the existing dataset, and risks to aquatic communities will be analyzed in the BERA. This analysis will help determine if additional data are needed.
<b>MVWQD-Matrix25</b>	WET Consulting (through MVWQD)	Section 3.4.3: Why not also target Columbia ground squirrels as they are a major factor in the food chain?	EPA believes a that a representative population of small mammals can be achieved from the targeted species. Not all species can be collected.
<b>MVWQD-Matrix26</b>	WET Consulting (through MVWQD)	Section 3.4.3: The three most abundant species will be prioritized for compositing. Why not conduct species specific composites as one species may be more susceptible to contamination than another.	The species that will be sampled is a species that is most likely to be trapped. This will probably be the most abundant small mammal species on site. Ecologically, the most abundant species on site are also the most likely to be consumed by higher trophic

<b><u>Comment ID</u></b>	<b><u>Reviewer</u></b>	<b><u>Comment</u></b>	<b><u>Response</u></b>
			level predators. EPA feels that sampling the most abundant species will provide a sound estimate of contaminant concentrations in small mammals that can be used to model uptake by higher trophic level organisms.
<b>MVWQD-Matrix27</b>	WET Consulting (through MVWQD)	Section 4.2.1: Sampling during the lowest flows of the year may not be representative of overall site characteristics.	EPA believes low flow is as representative, if not conservative, because contaminants would be less concentrated during higher flows.
<b>MVWQD-Matrix28</b>	WET Consulting (through MVWQD)	Section 4.2.2; Sediment and surface water sampling distances should be defined in this section as 40M from fish tissue sampling locations. Due to fish home range estimations.	Comment noted. EPA believes the current proposed sampling locations are sufficient to meet the data quality objectives of the work plan and study.
<b>MVWQD-Matrix29</b>	WET Consulting (through MVWQD)	Section 4.4.4: Benthic macroinvertebrate sampling should be consistent at each location.	Comment noted. EPA believes the current proposed biota sampling is sufficient to meet the data quality objectives of the work plan and study.
<b>MVWQD-Matrix30</b>	WET Consulting (through MVWQD)	Section 4.2.2: See preceding comment. Do the fish species of interest not reside in the onsite creeks, preventing them from being sampled here? As noted in other comments, the Bitterroot and Clark Fork Rivers likely receive anthropogenic chemical inputs from multiple sources. Defining these based on this sampling effort diverges from the stated data quality objectives, to assess risks and nature and extent of contamination at the Smurfit-Stone Mill. Wherever possible, increased sample density and samples from co-located stations should be acquired from onsite sources, to provide a systematic evaluation of site conditions, with an emphasis placed on-site first to determine if sources are impacting onsite media.	Comment noted. EPA believes current sampling density is sufficient to meet the data quality objectives of the work plan and study. Additional data may be required based on results of Addendum 9 sampling.



<b><u>Comment ID</u></b>	<b><u>Reviewer</u></b>	<b><u>Comment</u></b>	<b><u>Response</u></b>
<b>MVWQD-Matrix31</b>	WET Consulting (through MVWQD)	Section 4.6.2: Will raw dioxin/dibenzofuran data (lab report or tables) be provided along with the TEQ conversions?	All final laboratory reports will be appended to the data summary report for Addendum 9.  Only validated data will be used in the HHRA and BERA.
<b>MCC1</b>	David Strohmaier, (Missoula County Board of Commissioners)	In general, it appears that sampling is focused on identifying contributors from offsite rather than a more thorough assessment of onsite contributions. Instream sediment and water sampling is more heavily weighted towards upstream sampling with seven sediment and water samples proposed above the site while only three are located adjacent to the site. There is little doubt that other dioxin contributions are present within the watershed. The focus should, however, remain on past, current and future delivery of contamination to the river from this site. For this reason, the BCC recommends more focused sampling of sediments along the site at appropriate intervals in addition to piezometer or pore water sampling along the berm to evaluate migration of metals and dioxins from the site. We believe this should be conducted at various water level conditions and recommend this sampling occur semi-annually to capture both high and low water conditions.	Comment noted. EPA's focus for this sampling remains on identifying current risk to human health and the environment. To meet this request additional and ongoing sampling plans would need to be developed.
<b>MCC2</b>	David Strohmaier, (Missoula County Board of Commissioners)	With regards to the sediment data, it seems that there will be different sediment deposition patterns depending on the structure of the river channel and flow. We are concerned that this may confound data analysis. For this reason, we believe it is important to focus more of the sampling onsite and adjacent to the site, rather than upstream and to sample in likely deposition areas.	Samplers will be instructed to target similar sediment deposition areas within the CFR and site water bodies. No samples will be relocated as a result of this request.
<b>MCC3</b>	David Strohmaier, (Missoula County Board of Commissioners)	We are pleased that there will be evaluation of sediments and pond water at locations onsite and that these will be distinct samples that will not be composited	EPA requested that the PRPs collect a 5-point composite sediment sample rather than a single grab sample from each of the 12 on-

<u>Comment ID</u>	<u>Reviewer</u>	<u>Comment</u>	<u>Response</u>
			site ponds identified for sampling. Addendum 9 was modified accordingly.
<b>MCC4</b>	David Strohmaier, (Missoula County Board of Commissioners)	We remain concerned that the waste management units (dumps) have not been fully evaluated and will result in an incomplete remedial investigation which will cascade into a more lengthy and complicated process for all involved. We do not believe the Potentially Responsible Parties are adequately characterizing these dumps. Company records that list the general types of waste disposed of in the dumps are not reliable or all-inclusive. Developing a groundwater monitoring network that can adequately account for current and future contaminant transport is difficult as well. Additional sampling should take place at a greater density and over the full vertical profile of the waste to characterize the solid waste dumps and sludge Ponds. Some of these dumps were not regulated by DEQ as required by state and federal law. Focused attention on these areas is warranted in addition to the proposed supplemental sampling plan.	Comment noted. The purpose of the BERA and Addendum 9 is to evaluate risk, not to characterize the waste management units.
<b>CF1</b>	Charles H. Frey (Former Mill Employee)	The testing of any grounds should have the individual test stand on its own without averaging. Too many hot spots would have their numbers pulled down and give false readings. Spots tested without the hot spots or elevated readings would pull the hot spot numbers down overall. Safety is the first priority of the soil at the old Smurfit-Stone mill sight.	Comment noted. EPA, in consultation with DEQ, has proven that composite samples for risk assessment purposes are acceptable.

**Hallauer, Lori**

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**From:** Annie Cathey <acathey@missoulacounty.us>  
**Sent:** Friday, August 10, 2018 3:55 PM  
**To:** klarge@mt.gov; Sparks, Sara  
**Subject:** Missoula Counties Response  
**Attachments:** EPA Addendum No. 9.pdf

Please see the attached response from Missoula County regarding the EPA Addendum No. 9 baseline ecological risk assessment supplemental sampling.

Sincerley  
Annie Cathey

Annie Cathey  
Administrative Assistant  
Board of County Commissioners  
acathey@missoulacounty.us  
(406) 258-3200

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Board of County Commissioners  
Mailing Address: 200 West Broadway  
Physical Address: 199 West Pine  
Missoula, MT 59802-4292

BCC 2018-200  
August 9, 2018

(406) 258-4877  
bcc@missoulacounty.us

Sara Sparks  
EPA Region 8, Montana Office  
Federal Building  
10 West 15<sup>th</sup> Street, Suite 3200  
Helena, MT 59626

Keith Large  
Montana Dept of Environmental Quality  
PO Box 200901  
Helena, MT 59620

RE: Addendum No. 9 Baseline Ecological Risk Assessment Supplemental Sampling

Dear Sara and Keith:

The Missoula Board of County Commissioners (BCC) appreciates the opportunity to comment on the plan referenced above.

In general, it appears that sampling is focused on identifying contributors from offsite rather than a more thorough assessment of onsite contributions. Instream sediment and water sampling is more heavily weighted towards upstream sampling with seven sediment and water samples proposed above the site while only three are located adjacent to the site. There is little doubt that other dioxin contributions are present within the watershed. The focus should, however, remain on past, current and future delivery of contamination to the river from this site. For this reason, the BCC recommends more focused sampling of sediments along the site at appropriate intervals in addition to piezometer or pore water sampling along the berm to evaluate migration of metals and dioxins from the site. We believe this should be conducted at various water level conditions and recommend this sampling occur semi-annually to capture both high and low water conditions.

With regards to the sediment data, it seems that there will be different sediment deposition patterns depending on the structure of the river channel and flow. We are concerned that this may confound data analysis. For this reason, we believe it is important to focus more of the sampling onsite and adjacent to the site, rather than upstream and to sample in likely deposition areas.


We are pleased that there will be evaluation of sediments and pond water at locations onsite and that these will be distinct samples that will not be composited.

We remain concerned that the waste management units (dumps) have not been fully evaluated and will result in an incomplete remedial investigation which will cascade into a more lengthy and complicated process for all involved. We do not believe the Potentially Responsible Parties are adequately characterizing these dumps. Company records that list the general types of waste disposed of in the dumps are not reliable or all-inclusive. Developing a groundwater monitoring network that can adequately account for current and future contaminant transport is difficult as well. Additional sampling should take place at a greater density and over the full vertical profile of the waste to characterize the solid waste dumps and sludge ponds.

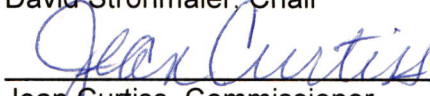
Some of these dumps were not regulated by DEQ as required by state and federal law. Focused attention on these areas is warranted in addition to the proposed supplemental sampling plan.

Thank you for the opportunity to comment.

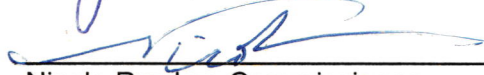
BOARD OF COUNTY COMMISSIONERS



David Strohmaier, Chair



Jean Curtiss, Commissioner



Nicole Rowley, Commissioner

BCC/ac

cc: Doug Benevento, Administrator, EPA Region 8  
Joe Vranka, Superfund Branch Chief, EPA Region 8  
Tom Livers, Director, Montana Department of Environmental Quality

## Hallauer, Lori

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**From:** Travis Ross <tross@missoulacounty.us>  
**Sent:** Wednesday, August 08, 2018 4:58 PM  
**To:** Sparks, Sara; Archer, Allie; David Tooke; Jennifer Sampson; Keith Large ; Lawrence J. Dears; Sanchez, Brian; Merritt, Steven; Skipper, Sherry  
**Subject:** RE: Extension  
**Attachments:** MVWQD Addendum 9 Comments.pdf; Addendum 9 Comment Matrix 8-8-18 MVWQD.xlsx

Thank you for the extension Sara. Our comments are attached. Travis

-----Original Message-----

From: Sparks, Sara <sparks.sara@epa.gov>  
Sent: Wednesday, August 08, 2018 4:09 PM  
To: Travis Ross <tross@missoulacounty.us>; Archer, Allie <Archer.Allie@epa.gov>; David Tooke <dtooke@newfields.com>; Jennifer Sampson <jsampson@integral-corp.com>; Keith Large <klarge@mt.gov>; Lawrence J. Dears <larry.dears@pwt.com>; Sanchez, Brian <sanchez.brian@epa.gov>; Merritt, Steven <Merritt.Steven@epa.gov>; Skipper, Sherry <Skipper.Sherry@epa.gov>  
Subject: RE: Extension

Please submit your comments to the above mentioned people and myself. Thank you. Sara Sparks

-----Original Message-----

From: Travis Ross [mailto:tross@missoulacounty.us]  
Sent: Monday, August 06, 2018 5:24 PM  
To: Sparks, Sara <sparks.sara@epa.gov>; Archer, Allie <Archer.Allie@epa.gov>  
Subject: Extension

Hi Allie and Sara. I understand an extension was granted for addendum 8 for the CAG. I assume this app oils apply to others as well. Please let me know if not. Otherwise I will get ours to you by Wednesday at 5. Thanks. Travis

Sent from my iPhone

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August 8, 2018

Sara Sparks  
EPA Region 8, Montana Office  
Federal Building  
10 West 15<sup>th</sup> Street, Suite 3200  
Helena, MT 59626

Keith Large  
Montana Dept of Environmental Quality  
PO Box 200901  
Helena, MT 59620

**RE: Comments on Addendum No. 9 to the Remedial Investigation Work Plan, Supplemental Sampling, Baseline Ecological Risk Assessment; Smurfit-Stone/Frenchtown Mill, Missoula County, Montana**

Dear Sara and Keith:

The Missoula Valley Water Quality District (MVWQD) appreciates this opportunity to provide comments on the above referenced document. Consistent with comments on previous documents, MVWQD continues to be concerned with overall site characterization data gaps, which may lead to a failed Conceptual Site Model (CSM) that is not fully representative of the site, which may impact site-specific risks and subsequent remedial action decisions. We have included both general comments which relate to the overall sampling approach, as well as specific comments on report sections.

**General Comments**

- 1.) Hydraulic Connection Between Ponds and Clark Fork River:** It is almost certain that there is or has historically been, a hydraulic connection between the ponds and surface water, especially since the ponds were originally designed to discharge to the river. Failure to accurately identify the groundwater / surface water connection is one of the largest data gaps at the site. A ground water / surface water interaction study should be conducted to determine details including but not limited to: the extent of the connection, seasonal affects, gaining vs. losing reaches, site geologic units that may be acting as migration pathways, and how these issues may affect contaminant migration at the site.
- 2.) Historical Impacts:** Addendum 9 does not fully consider the potential historic impacts and loading from an era when the mill was in operation. While it is most likely true that the hydraulic head in the ponds are currently low for most of the year, this most certainly was not always the case. When the mill was in operation, the ponds were likely bank full. During these times, there were likely positive hydraulic gradients from the ponds to the river. For this reason, stream bank sediment sampling should be a key component of this addendum in order to fulfill data quality objectives designed to establish a complete ecological risk assessment. Stream bank sediments are mobilized and in direct communication with both surface- and groundwater and offer complete pathways for exposure to ecological receptors.



- 3.) Sample Locations/Distributions:** The current plan lacks sufficient sample density on the Smurfit-Stone site when compared off-site locations. There are 7 upgradient sample locations, 11 downgradient samples locations, but only 3 locations within the reach of the site along the Clark Fork. The investigation seems to place more emphasis on conditions in the Clark Fork River, particularly upstream of the site, than it does on conditions on the site. The locations do not appear to support the stated objective of the investigation which is to fill data gaps, such that ecological risks associated with the site can be assessed. While background conditions are an important part of any risk assessment, they should not be the primary focus. The extent, fate and transport, and primary exposure pathways of the on-site contaminants of concern should be the primary focus of the data gap investigation, not background contributions from upstream sources.
- 4.) Sampling Approach:** The randomized, discrete sampling approach is not the appropriate method for sampling fluvial sediments and pore water. A more systematic approach should be implemented; we recommend a transect approach. A high density sampling transect approach, particularly in the proximal areas located adjacent-to and immediately downgradient of the site will provide the sampling resolution necessary to identify the extent of the sources and exposure routes for contamination emanating from on-site and off-site sources. Transects should be established beginning at the ponds, and bank and bed sediments should be collected at selected locations along the transects. Co-located surface water, ground water, pore water, and tissue samples should be collected during the same event.
- 5.) Sampling Rationale:** Some sample sites have various media being collected at each site (sediment and water, sediment, tissue and water, etc.). Please provide rationale for the selection of sample media at each site. Additionally, more pond samples should be collected, particularly those with historic evidence of receiving contaminated media as well as those adjacent to the Clark Fork River.
- 6.) Variability of Data:** There are inherent variability in sediment data. Contaminant concentrations can change significantly depending on where the sample is collected, and at what depth. The work plan as written, does not appear to take the inherent variability of sediment data in consideration. Sediment sampling transects located perpendicular to flow should be considered to account for variability.
- 7.) Statistical Significance:** The frequency and total number of samples does not seem to be of sufficient quantity to have achieve statistical significance; as a result, more sampling locations are recommended on the Smurfit-Stone site.
- 8.) Seasonal Variability:** The current sampling plan does not account for seasonal fluctuations typical in stream side environments in Montana. Additionally, how will the abnormally high flow events in 2018 affect sample results. Recommend a semi-annual, or quarterly sampling program.
- 9.) Other Data Gaps:**  
Have non-contact cooling water ditches, sewer infrastructure, and other utility conduits been accurately identified and sampled?



Also attached for your consideration are specific comments relating to *Addendum 9 to the Remedial Investigation Work Plan, Supplemental Sampling, Baseline Ecological Risk Assessment; Smurfit-Stone/Frenchtown Mill, Missoula County, Montana*.

Our overriding and specific comments reflect our position, that MVWQD and other stakeholders, have provided a series of comment letters providing substantive comments in the past. The common theme throughout these reflects our concern that the RI process to date, has lacked a systematic approach and the overall rigor to fully support characterization. We continue to maintain this position, as our concerns have not been fully addressed. We are concerned the process will result in an unsatisfactory remedy to the community.

An effective remedy starts with a robust and complete RI process, one where all parties are confident that data gaps have been addressed, and DQOs have been satisfied. In this respect, the failure to address previous MVWQDs comments is a concern, and if left unanswered, this lack of communication can result in a discord as to the completeness of the remedial investigation. From its headwaters down, the Clark Fork River has numerous case-studies, which collectively can be used both as examples of robust and protective remedies, and failures resulting in important lessons learned. In the worst-case scenarios, failed RI's are the primary culprit for an ineffective, costly, and drawn-out process. However, when all parties have come together in agreement of a complete RI, a cost-effective, timely, and protective clean-up has been achieved. Although it is our desire to move this project forward in a timely manner, it is critical that the agencies require a fully comprehensive RI, so the risk assessment represents onsite conditions, and final remedy decisions address these impacts. The MVWQD looks forward to being a productive partner in this process, and your response.

In addition to this letter, please find the additional comment matrix which were compiled collaboratively with Water and Environmental Technologies. Thank you for the opportunity to comment.

Sincerely,

A handwritten signature in black ink, appearing to read "Travis Ross".

Travis Ross  
Missoula Valley Water Quality District

Cc: Doug Benevento, Administrator, EPA Region 8  
Joe Vranka, Superfund Branch Chief, EPA Region 8  
Tom Livers, Director, Montana Department of Environmental Quality

ATTACHMENTS

Specific Comments

**Hallauer, Lori**

---

**From:** Elizabeth Oleson <olesonea@onewest.net>  
**Sent:** Wednesday, August 08, 2018 11:32 AM  
**To:** Sparks, Sara; Archer, Allie  
**Cc:** Keith Large  
**Subject:** Smurfit-Stone Community Advisory Group Public Comment - Ecological Risk Assessment Supplemental Sampling  
**Attachments:** CAG Public Comment Aug 8 2018 Final.docx

Dear Sara:

Attached please find the Smurfit-Stone Community Advisory Group's public comments related to Addendum No. 9 to the Remedial Investigation Work Plan: Supplemental Sampling, Baseline Ecological Risk Assessment.

We appreciate the two day extension provided for submission of this public comment document. We are submitting it in WORD format as requested.

*Sent as blind carbon copies to all CAG Participants.*



**SMURFIT-STONE COMMUNITY ADVISORY GROUP**  
**Post Office Box 1042**  
**Frenchtown, Montana 59834**

August 8, 2018

Sara Sparks, EPA Remedial Project Manager  
US EPA Region 8  
400 N. Main  
Butte, Montana 59701

RE: Public Comments for Addendum No. 9 to the Remedial Investigation Work Plan – Supplemental Sampling, Baseline Ecological Risk Assessment

Thank you for the opportunity to comment on the Supplemental Sampling Work Plan for the Baseline Ecological Risk Assessment (BERA). The Community Advisory Group (CAG) makes the following recommendations.

Table 3-4 Data Quality Objectives, Sediment Porewater from Onsite Ponds

The sampling plan calls for deploying for four weeks Peepers and/or PushPoint Samplers with semipermeable membranes to analyze for dissolved and total metals in porewater sampling locations in onsite ponds. (See also Appendix A, page 11, 2.4.3 Porewater). The CAG recommends the porewater samples also be tested for dioxin/furan congeners, similarly to testing planned for surface water and sediments, macroinvertebrates, fish and small mammal tissue.

Appendix A, 2.3.1 LaValle and O’Keefe Creek Sampling

According to the Figure A-4 map, the two upstream sampling locations for LaValle Creek (34-LV and 35-LV) and the single upstream location for O’Keefe Creek (40-OK) are quite close to the mill Site. In particular, 35-LV is barely outside the Site. The CAG recommends the upstream sampling locations be further away from the Site’s potential “area of influence.” Concern exists for possible historic aerial deposition and/or high water contamination to these upstream locations so close to the mill Site.

Table 3-6 Data Quality Objectives, Fish Tissue from the Clark Fork River

The sampling of longnose dace is proposed, a minnow-like fish which has small home ranges and high site fidelity. Documented home ranges, though, have ranged from 14 meters in North Carolina to up to 500 kilometers in an Appalachian stream.<sup>1</sup> Researchers may want to ensure that occupied test locations are separated by at least several kilometers, perhaps as many as 10 kilometers, to ensure sampled

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<sup>1</sup> [https://en.wikipedia.org/wiki/Longnose\\_dace](https://en.wikipedia.org/wiki/Longnose_dace)

populations are truly independent.<sup>2</sup> The CAG recommends at least one sample location be upstream as far away as up the Blackfoot River to increase the probabilities of obtaining verifiable differences in background measurements from a fish population adequately distanced from the mill.

#### Table 3-7 Data Quality Objectives, Small Mammal Tissue from the Upland Habitats of the Site

The Sampling Plan focuses on trapping small mammals such as shrews and deer mice on OU2 and OU3, with background samples trapped on OU1. Even though shrews (440-750 yards) and deer mice (1/2 – 4 acres) have small home territories, it is not inconceivable they could roam between the various operable units. Even the Sampling Plan notes the traps should not be set out for longer than four consecutive nights per week, for a maximum of two consecutive weeks because the population can be depleted and the community composition altered (Appendix B 2.3.9.3. Small Mammal Trap Deployment). The CAG recommends small mammal tissue for background purposes be collected further away than OU1.

#### General Comments

- What are the physical and biological attributes that guided the rationale for determining the sampling locations?
- The maps should better identify publicly known geographical locations (especially towns, bridges, fishing access points) to better understand the locations of various sampling sites.
- Wakefield Kennedy chose not to pay taxes on parcel 865200 which may have the most contamination (especially in holding ponds 13 and 13a). Is there data that shows high levels of contamination within this parcel? If so, is intensive sampling focused within this area to determine what level of restoration may be needed? Worry continues that the sampling strategies have not thus far identified areas of most concern which may be fairly limited in size but could pose considerable risks in the future if not addressed. A buried transformer or barrel(s) containing solvents or other contaminants slowly rusting away would be possible examples. It has been suggested using metal detectors or other technology to identify these problems be pursued so site specific sampling can be done.

#### In Summary

As a liaison between the EPA, Montana DEQ and concerned community groups, the Smurfit-Stone Community Advisory Group appreciates the opportunity to submit these public comments.

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<sup>2</sup> [http://explorer.natureserve.org/servlet/NatureServe?searchName=Rhinichthys cataractae](http://explorer.natureserve.org/servlet/NatureServe?searchName=Rhinichthys%20cataractae)

## Hallauer, Lori

---

**From:** Gilskey, Shannon <Shannon.Gilskey@mt.gov>  
**Sent:** Monday, August 06, 2018 9:46 AM  
**To:** Sparks, Sara  
**Cc:** Mostad, Tom; Piggott, Amelia; Vranka, Joe; Sanchez, Brian  
**Subject:** Smurfit-Stone Mill, Frenchtown - Comments on Addendum 9 to the Remedial Investigation Work Plan BERA Work Plan Sampling 08.06.2018  
**Attachments:** 08062018 Smurfit-Stone Comments on Addendum 9 to the Remedial Investigation Work Plan BERA Work Plan Sampling.pdf

Dear Ms. Sparks,

Attached is a letter from Montana Natural Resource Damage Program with comments on Addendum 9 to the Remedial Investigation Work Plan BERA Work Plan Sampling at Smurfit-Stone Mill. Please contact Tom Mostad if you have any questions.

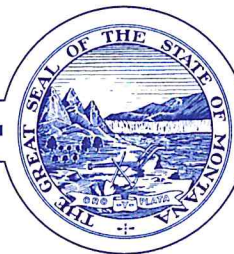
Thank you,

**Shannon Gilskey**

Department of Justice  
Natural Resource Damage Program  
1720 9<sup>th</sup> Avenue  
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DEPARTMENT OF JUSTICE  
NATURAL RESOURCE DAMAGE PROGRAM



TIM FOX  
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[Sent Via Email]

August 6, 2018

Sarah Sparks  
U.S. Environmental Protection Agency  
Region 8, Montana Office  
10 W. 15<sup>th</sup> Street, Suite 3200  
Helena, Montana 59626

Re: Smurfit-Stone Mill Frenchtown, Comments on Addendum 9 to the  
Remedial Investigation Work Plan BERA Work Plan Sampling.

Dear Ms. Sparks:

The Montana Natural Resource Damage Program provides the following comments on the above-referenced document, as provided by 40 C.F.R. § 300.430. NRDP also has utilized its consultant, Abt, to provide comments on this document (attached). Please feel free to contact me if you have any questions.

Sincerely,

A handwritten signature in blue ink, appearing to read "Tom Mostad".

Tom Mostad  
Environmental Science Specialist  
Montana Department of Justice  
Natural Resource Damage Program

cc (via e-mail):

Amelia Piggott, EPA  
Joe Vranka, EPA  
Brian Sanchez, EPA

**Smurfit Work Plan App. 9, BERA Sampling Comments:**

Figures 3-1, 3-2 & 3-3:

The areas identified as sampling locations are large and not presentative of the actual locations that will be sampled. For example, the sampling location identifiers (orange circles) in Figure 3-1 are 250-foot diameter circles, in Figure 3-2 are 1,340-foot diameter circles and in Figure 3-3 are 280-foot diameter circles. Thus, the sample collectors will have to make some decisions within the locations as to the precise sampling locations. How will the precise sampling locations be determined, what criteria will be used, or is there a decision matrix to select the precise locations to ensure the goals for each sampling media is met?

# memorandum



## Division of Health and Environment

**Date:** 8/2/2018

**To:** Katherine Hausrath and Tom Mostad, Montana Natural Resource Damage Program

**From:** Jamie Holmes and Kaylene Ritter, Abt Associates

**Subject:** Comments on the July 2018 "Addendum No. 9 to the Remedial Investigation Work Plan: Supplemental Sampling, Baseline Ecological Risk Assessment, Smurfit-Stone/Frenchtown Mill, Missoula County, Montana"

### 1. Introduction

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This memorandum provides comments on Addendum No. 9 (the Addendum) to the Remedial Investigation Work Plan (RIWP): Supplemental Sampling, Baseline Ecological Risk Assessment (BERA), Smurfit-Stone/Frenchtown Mill, Missoula County, Montana. Integral Consulting and NewFields (hereafter, the contractors) prepared this Addendum on behalf of the potentially responsible parties. The Addendum states that the supplemental sampling data will help to inform the BERA for the U.S. Environmental Protection Agency (EPA). The Addendum describes proposed sampling of surface water, sediment, porewater, and biological tissue at the mill and in nearby creeks and rivers.

EPA has circulated two draft work plans for the BERA; a final work plan is expected soon. Generally, this Addendum to the RIWP addresses some of our comments on EPA's earlier drafts of the BERA work plan. In both November 2017 and April 2018, we provided comments on the BERA work plan that included a critique of the proposed tiered risk assessment approach. EPA had proposed collecting minimal data for risk assessment, and expanding that data collection only if the initial data suggested risk. For example, they proposed collecting sediment and benthic macroinvertebrates (BMIs) from onsite ponds and the Clark Fork River, but only collecting sediment porewater and fish tissue data later, if the sediment and BMI data had elevated concentrations of contaminants from the mill site. In this Addendum, the tiered approach is no longer proposed, in favor of collecting porewater and fish tissue data at the same time as sediment and BMI data.

The following sections contain specific comments on the Addendum.

### 2. Specific Comments

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#### 2.1 Previous Studies

The summary of previous site investigations does not include a summary of the samples collected this year during the high water event in the Clark Fork River. This sampling detected elevated levels of dioxins and furans in a sample collected directly adjacent to the facility,



compared to upstream samples, and dissolved metals concentrations that were above upstream concentrations and aquatic life criteria.

## **2.2 Proposed Sampling Locations**

Figure 3-1 shows 10 sampling locations in Lavalle and O’Keefe creeks, but only 5 locations will be sampled for surface water. It is unclear why only half the sites will include surface water collection, and how the contractors decided which locations to include.

Figure 3-2 shows 20 sampling locations in the Clark Fork River (and one in the Bitterroot River) for surface water, sediment, and fish tissue. At the scale of the map in Figure 3-2, it is not possible to discern the specific sites that will be sampled. Appendix A of the Addendum states that “Fine grain sediments from depositional areas of the river will be targeted for sample collection. Sampling locations for sediment and water in the Clark Fork will be finalized during the reconnaissance visit in July, 2018” (p.8 of Appendix A). We agree that depositional areas should be targeted for sampling, though Appendix A should provide further detail on how these sites will be identified and selected, and we would like the opportunity to review the sites after the reconnaissance visit and ahead of field sampling.

At six of the sites, no collection of fish tissue samples is proposed. It is unclear how the contractors decided which sites should include fish tissue samples and which should not. Moreover, most of the sites that will not include tissue collection are downstream of the mill site. If the goal of supplemental sampling is to evaluate the potential exposure of biota to site contaminants, tissue samples should be collected at all of the sample sites, particularly those sites downstream of the mill.

It appears that the collection of macroinvertebrate tissue samples in the Clark Fork River is not proposed, yet Table 2.1 of the Addendum indicates that risk to fish will be assessed based on both tissue concentrations and dietary exposure through consumption of prey (invertebrates). If no macroinvertebrate tissue data will be collected in the Clark Fork River, how will the dietary exposure pathway be assessed? Macroinvertebrate samples should also be collected in the Clark Fork River to enable the assessment of fish dietary exposure pathways.

Figure 3-3 shows 12 proposed sampling locations in the OU2 and OU3 ponds. It is not clear how or why the contractors selected this subset of ponds for data collection. The Addendum states, “The set of ponds selected for sampling is expected to capture the range of conditions that could drive ecological risks in the ponds” (p. 3-5). There are many areas of standing water in OU2 and OU3. It is unlikely that 12 samples will capture the range of conditions for potential risks. For example, the inundated area of Pond P5, a primary settling pond, covers more than 20 acres. More than one sample should be collected from this pond to adequately capture the range of conditions that would drive ecological risks.

## **2.3 Surface Water Sampling**

The contractors propose collecting 1-liter grab samples from the upper third of the water column for the analysis of dioxins and furans. This is unlikely to adequately characterize potential exposure, particularly in the ponds. First, dioxins and furans are toxic at very low concentrations, and toxic effects levels can be lower than detection limits. Previous sampling events have shown that the detection limit from a 1-liter sample may not be low enough to adequately characterize

exposure. Second, surface water can be a pathway to biota, with dioxins and furans accumulating in exposed biota to deleterious levels, even if the concentrations in the surface water are very low.

For these reasons, the contractors should consider deploying passive sampling devices to better characterize exposure to dioxins and furans, in addition to collecting surface water grab samples. There are numerous examples of these devices that have been developed specifically for characterizing hydrophobic persistent organic pollutants such as dioxins and furans, including polyethylene- and triolein-based semipermeable membrane devices (SPMDs), polydimethylsiloxane (PDMS)-based solid-phase microextraction (SPME) devices, and polyoxymethylene (POM) devices (Burgess et al., 2015; Lohmann, 2015). These passive samplers typically reach equilibrium within one to two months after deployment (Lohman and Muir, 2010; Lohmann, 2015). The contractors are deploying peepers for four weeks to analyze porewater metals; they could likewise deploy passive samplers for four weeks, preferably in both the ponds and the Clark Fork River. The data would likely provide a far better determination of potential exposure to and risk from dioxins and furans at and near the mill site.

The Addendum suggests that the contractors have concluded *a priori* that metals present in surface water have limited bioavailability. They suggest using the biotic ligand model (BLM) and possibly other models to assess bioavailability. Several studies have shown that the BLM often under-predicts toxicity. For example, Fulton and Meyer (2014) showed that the BLM under-predicted copper toxicity to fathead minnows by more than a factor of two. Given the inherent uncertainty associated with bioavailability models, they should not be relied upon exclusively to assess toxicity. If bioavailability is suspected to play a significant role in reducing the toxic effects of metals, then additional data may need to be collected to confirm this. For example, site-specific toxicity tests may be needed to confirm the modeled predictions. This could involve laboratory tests conducted with site water, sediment, and biological species found at the site. Models that under-predict toxicity should not be used to obfuscate the potential risk to biota.

## **2.4 Sediment Sampling**

To sample sediments in the 12 selected ponds in OU2 and OU3, the contractors propose collecting a single sample using a Ponar-type sampler, which would collect sediment from the upper 15 cm of sediment. It is not clear whether this single sample is intended to represent the ecological risk for the entire pond from which it came, as well as ponds nearby that are not sampled. As noted previously, a single sample is unlikely to sufficiently characterize the range of ecological risks from larger ponds and from the unsampled ponds nearby. In larger ponds, the number of samples should be increased. The contractors should consider a stepwise approach, where the initial samples are collected using a grid with a consistent cell size, and additional targeted sampling will follow in locations where the data suggest elevated risks.

## **2.5 Porewater Sampling**

Porewater sampling is proposed only for the 12 sample locations in the OU2 and OU3 ponds, and the contractors will only examine metals. Porewater in Clark Fork River sediments adjacent to the mill site may reveal contaminants present in upwelling groundwater that would not be detected in overlying surface water samples. Also, contaminants of concern other than metals may also be present in porewater, including dioxins and furans.

As noted previously, we recommend that the contractor deploy SPMDs when they deploy peepers for four weeks. We recommend that SPMDs be deployed in the Clark Fork River in addition to the onsite ponds.

The porewater sampling will include data both from peepers and from PushPoint samplers. If the data from these two distinct methods are not in agreement, which data set will be relied upon to estimate risk? Cleveland et al. (2017) found that at low metal concentrations, PushPoint sampling resulted in up to 100 times higher concentrations of metals and dissolved organic carbon in porewater compared to peepers. If a similar disparity occurs in any of these samples, how will risk be evaluated? The Addendum should describe how the results from the two sampling methods will be analyzed in the assessment of risk, particularly in the instance of large disparities in results.

In addition, we note that the description of the porewater analysis implies that risk to macroinvertebrates will only be assessed based on dissolved metals concentrations in pore water, and that sediment concentration data will not be considered. “Because the capacity of the sediments in each pond to bind metals or to compete with metals for binding sites on the organisms is unknown and likely spans a range across the variety of ponds on the Site, the most direct approach to understanding the potential toxicity of the pond sediments is through direct measurement of metals in sediment porewater” (p. 3-6). First, no sources are cited to support the statements regarding the macroinvertebrate exposure mechanisms (sediment vs porewater ingestion). Second, while there is a large body of literature providing sediment toxicity reference values (TRVs) for macroinvertebrates, there are comparatively few studies reporting macroinvertebrate TRVs for porewater, and hence the ability to interpret porewater data may be more limited. Finally, if the contractors believe that the binding capacity of the sediment is highly uncertain, they should conduct site-specific sediment toxicity tests.

## **2.6 Tissue Sampling**

The contractors are proposing to collect macroinvertebrate, fish, and small mammal tissue samples as a part of the proposed sampling.

The Addendum describes collecting fish (specifically longnose dace) tissue samples, using backpack electroshockers. As noted above, tissue samples should be collected from all the proposed sampling locations, including the six locations downstream of the site that the contractors are currently proposing not to sample. Further, if the contractors are deploying teams with backpack electroshockers to capture longnose dace in the Clark Fork River, they should consider multiple-pass depletion methods to quantify fish community, density, and catch per unit effort. These additional data can be collected with minimal extra effort and can help with the evaluation of potential impacts from this site.

Collecting tissue samples may inform dietary exposure to biological receptors that eat fish, but it may be of limited value in assessing effects to the fish themselves. Many contaminants, including metals, can cause deleterious effects to fish without necessarily accumulating in their tissues. Therefore, collecting these additional community metric data could provide important data in the characterization of ecological risk. Macroinvertebrate community metrics (relative abundance, diversity) should also be collected, for similar reasons.

The Addendum states, “The absence of statistical correlations between bulk sediment chemistry and tissue chemistry may indicate the presence of conditions not attributable to hazardous substances that may limit or amplify bioaccumulation of chemicals from sediments, which can also inform long-term management of the Site” (p. 3-5). The absence of statistical correlations between bulk sediment and biological tissue samples might also signify that biota were exposed to mill site contaminants in a location other than the specific location where the sediment sample was collected. Conclusive statements about the origins or bioavailability of site contaminants are not justified, based on only a handful of samples that are supposed to characterize risk in hundreds of acres of ponds and many river miles in the Clark Fork River.

Further, the Addendum states, “The absence of a spatial pattern, or a pattern in which upstream fish tissue concentrations exceed or are equal to concentrations in fish adjacent to and/or downstream of the Site, will be interpreted to indicate that the Site is not a significant source of the constituent to the aquatic food web of the Clark Fork River” (p. 3-11). A conclusion about the source of contamination must incorporate additional factors, such as the possibility that site contaminants were transported upstream of the mill via stack emissions, or that fish are mobile. As such, the absence of a pattern or any measurements of upstream fish tissue concentrations that exceed or are equal to concentrations in fish downstream of the site may instead indicate that the upstream locations are not representative of background conditions, and are therefore not appropriate reference locations for the site.

Finally, this supplemental tissue sampling does not include avian tissue samples. There is substantial evidence that dioxins and dioxin-like-compounds (DLCs) cause adverse effects to birds at very low concentrations, with sensitive endpoints such as reduced visual acuity, cardiac malformations, reduced reproduction, and growth (see, for example, Cohen-Barnhouse et al., 2011; Ottinger and Dean, 2011; Carro et al., 2013). For the purposes of the BERA, avian egg tissue data could be collected in the vicinity of the site, with contaminant concentrations compared to literature-based egg TRVs for DLCs.

## References

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## Hallauer, Lori

---

**From:** Schmetterling, David <DSchmetterling@mt.gov>  
**Sent:** Monday, August 06, 2018 12:35 PM  
**To:** Sparks, Sara  
**Cc:** Elizabeth Oleson; Jeri Delys; 'Harrington, Jennifer'; Mostad, Tom; Martin, Douglas; Mary Price; Sanchez, Brian; Skipper, Sherry; Merritt, Steven; Wall, Dan; Amber Bacom; Skaar, Donald; Roberts, Eric; Selch, Trevor; Rouse, David; Hausrath, Katherine; Ken Merrill; Knotek, William; Saffel, Patrick  
**Subject:** FWP Comments on Addendum 9 to the BERA Supplemental Sampling Work Plan  
**Attachments:** Addendum 9 FWP comments.pdf

Sara,  
Thanks for the opportunity to review this document. Attached are comments by Trevor Selch and myself. In order to meet the commenting deadline, unfortunately we were not able to review this document as carefully as we could have. However, we think the comments we do provide will be helpful in improving the quality of this proposed sample collection.

Thanks again.

Sincerely,

David

**David Schmetterling**  
*Fisheries Research Coordinator*  
Fisheries Division  
[Montana Fish, Wildlife & Parks](#)

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**THE OUTSIDE IS IN US ALL.**





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Sara Sparks, EPA Remedial Project Manager  
US EPA Region 8  
400 N. Main  
Butte, Montana 59701

August 6, 2018

RE: ADDENDUM NO.9 TO THE REMEDIAL INVESTIGATION WORK PLAN Supplemental Sampling, Baseline Ecological Risk Assessment Smurfit-Stone/Frenchtown Mill, Missoula County, Montana

Sara,

Thank you for the opportunity to comment on this document. Trevor Selch and I have read the document and provide the following comments. Most of our comments surround sections 3.4 and 3.4.2, this was a long document and because of the short turnaround time for comments, we were unable to provide a more thorough or critical review in the allotted time. However, we hope those following comments are helpful and we would be happy to provide guidance on more suitable sample locations.

#### 3.4.1 Benthic Macroinvertebrates

Only one composite BMI sample is proposed from each site. We suspect TEQ concentrations would be highly correlated to species analyzed, so we don't see the value of one single composite from each site without assessing species composition or better yet, analyzing specific taxa separately, and having replicates.

#### 3.4.2

In general, we agree that sediment and small fish samples should be co-located, however, these should complement the other sampling as well, namely the collection of game fishes we have recently completed (Northern Pike and Rainbow Trout). Therefore, we strongly suggest you include samples collected at the following locations:

- Blackfoot River near Greenough
- Bitterroot River near Lolo
- Bitterroot River near Florence
- Clark Fork River near Clinton
- Clark Fork near East Missoula
- Clark Fork River near St Regis

All these locations are near public access sites (primarily state Fishing Access Sites), and Longnose Dace are abundant.

Few if any upstream samples that have been identified would be outside the area that has been historically influenced by the site, so therefore, they are all considered “treatment” sites. There are no controls or locations that would help determine what is “background” or had been unaffected by the site. This is a serious flaw in this study’s design. If there are compelling data that suggest otherwise, that is the locations described in this document are outside the area influenced by the Mills operation for decades, we have not seen them.

Although it is not an explicit objective of the study to understand the source of any contaminants in fish, sediment, or the river, minimally it would be helpful to understand the distribution of these contaminants over a larger geographic scale than the one presented in this document.

Similarly, the sample locations in O’Keefe and LaValle creeks are only sites that have been affected by the operation of the Mill. Sites further upstream and outside the influence of the Mill should be included.

Indeed, the home ranges of Longnose Dace are relatively small, and that is what makes them an excellent species to compliment other fish evaluations. However, the assertion that Longnose Dace occupy a home range of only 40m is misleading. This small home range taken from a single source (Hill and Grossman 1987), which probably reflects the habitat unit size in those small North Carolina streams which varied from 2-11m wide (stream width, along with channel slope, etc... is related to habitat unit size). To make comparisons of those habitats (in Hill and Grossman 1987) to the Clark Fork River, whose width, and habitat units, are at least an order of magnitude greater is inappropriate. Habitat unit size is a good, biologically significant reference to use for comparisons (e.g., Adams and Schmetterling 2004; Young and Schmetterling 2012).

As a result, we strongly suggest spacing the samples much farther apart to avoid pseudo replication, or simple replication of the sites. That is, in order to sample in biologically meaningful different locations, the same number of sample sites could be used, but we recommend combining many of the existing sites. For example, 46-CFR and 47-CFR could be combined to one, 53-CFR, 54-CFR, 55-CFR could be combined into one intermediate location, and similarly, 57-CFR and 61-CFR could be one site. Then, those additional 6 locations we referenced earlier should be added.

Furthermore, because of the small home ranges exhibited by Longnose Dace, there would be the opportunity to identify other sources of contaminants to the river that the EPA and PRP’s have alluded to, such as the City of Missoula Wastewater Treatment Plant and the Bonner Mill. However, with the proposed sampling plan none of this would be possible.

There is not nearly enough detail of the methods to evaluate the sample preparation methods in 3.4.2 page 3-10.

The use of “any individuals of non-target species other than salmonids” is strongly discouraged. The collectors should be able to easily collect sufficient Longnose Dace and Longnose Dace alone. Introducing other species into the samples would completely invalidate the results. For example, other minnow species or sucker species perform extensive migrations and likely would not be reflective of the conditions at a specific location that a more sedentary species like Longnose Dace provides.

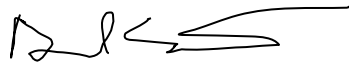


If the collectors are incapable of identifying Longnose Dace or distinguishing them from other minnow species, they should not be permitted to do this work. Minimally voucher specimens should be collected to assess the quality of the fish identification. If this will be performed, please provide the methods for collection or QA/QC of the species identification.

It is unclear from this document, conversations with some of the consultants, as well as the Application for a Montana Scientific Collector's permit, who will be doing the fish collection and fish preparation and their knowledge, ability, and qualifications.

Thanks again for the opportunity to review this document. Trevor and I will be glad to provide assistance to address the concerns we have raised.

Sincerely,

A handwritten signature in black ink, appearing to read 'D. Schmetterling', with a long horizontal line extending to the right.

David Schmetterling

## Hallauer, Lori

---

**From:** Mary Price <Mary.Price@cskt.org>  
**Sent:** Monday, August 06, 2018 3:39 PM  
**To:** Sparks, Sara  
**Cc:** Sanchez, Brian; Merritt, Steven; Skipper, Sherry; Doug Martin; Mostad, Tom; David Schmetterling; Trevor Selch; David Rouse; Ken Merrill (Kmerrill@kalispeltribe.com); Stu Levit ; John Harrison; Travis Ross (tross@missoulacounty.us); Elizabeth Oleson (olesonea@onewest.net); Jeri Delys; Harrington, Jennifer  
**Subject:** CSKT comments Addendum to RIWP for the Smurfit Site  
**Attachments:** CSKT Comments Addendum 9 0809 2018 .pdf

Sara,

Under cover of this email I am transmitting the CSKT's comments on Addendum 9 to the RIWP for the Smurfit Site. The comment period did not allow me to conduct a review commensurate with the scope of the document. Comments highlight areas of concern and questions for further discussion with EPA. Thank you for considering these comments as EPA continues the RI/RA for the Smurfit Site. Please do not hesitate to contact me should have any questions.

Mary Price  
Legal Department Science Coordinator  
Confederated Salish and Kootenai Tribes  
(406) 675-2700 ext. 1167



August 6, 2018

Sara Sparks, Project Manager  
EPA Region 8, Montana Office  
[sparks.sara@epa.gov](mailto:sparks.sara@epa.gov)

Transmitted via email.

RE: Addendum No. 9 to the RIWP Supplemental Sampling, Baseline Ecological Risk Assessment Smurfit-Stone/Frenchtown Mill, Missoula County, Montana (DRAFT July 2).

Thank you for the opportunity to comment on Addendum 9 to the RIWP. The comment period did not allow me to conduct a review commensurate with the scope of the document however the following comments highlight areas of concern and questions for further discussion with EPA.

1. **Air deposition modeling is needed to determine appropriate background sample locations that are clearly outside the area of influence from historic mill operations.** As previously noted the Tribes would strongly support this approach and encourage EPA to involve trustees in the air depositional modeling process and selection of background locations. Absent air deposition modeling background sample locations may not be “background” because both upstream and downstream sites and sites within operable units (i.e. OU1 small mammal sampling) could be affected by historic air deposition. The selection of background sampling locations is arbitrary absent air deposition modeling. As previously noted the use of the term “background” should be avoided until appropriate locations that are clearly outside of the area of influence of the Smurfit site are identified.
2. **Spatial boundaries for fish tissue sampling of different trophic levels should match in order to determine the bioaccumulation of Dioxin/ Furan and PCBs .** The spatial boundary for the collection of longnose dace (Clark Fork River, Bitterroot River) differs from the spatial boundary for the collection of rainbow trout and northern pike (Clark Fork River above confluence with Blackfoot River to St. Regis, Blackfoot River, Bitterroot River). What is the rational for the different spatial boundaries?
3. **Maps showing sampling locations exclude valuable information that inhibits analysis and obscures potential data gaps.** Map figures for Clark Fork River /tributaries sampling locations would benefit by displaying river miles in order to determine distance between sampling locations. Displaying relevant towns (i.e. Lolo, Missoula, Frenchtown, Alberton, Saint Regis, Greenough) would also be helpful. As previously noted we request EPA develop a regularly updated geodatabase that is accessible by all interested parties.
4. **Dioxins / furans and PCBs should be analyzed for all abiotic media / biota that may be exposed to groundwater.** EPA has identified that waste areas (i.e. sludge ponds and landfills) as sources of

contaminants, based upon the exceedance of the dioxin Circular DEQ-7 Numeric Water Quality Standards in the groundwater under the waste areas. On-site ponds are fed by groundwater. Why is dioxin excluded from analysis of sediment porewater in ponds?

5. **Additional questions regarding sampling design and EPA oversight.** What are the physical, chemical or biological attributes that guided the selection of sample locations for sediment, surface water, and fish tissue samples within the Clark Fork River /tributaries? Did EPA participate in preliminary site reconnaissance to finalize sampling locations for sediment, surface water and fish tissue in the Clark Fork River, Bitterroot River, creeks, ponds, terrestrial areas? Will EPA be on-site to observe sampling? Will all sampling locations including the Clark Fork River, creeks, ponds and terrestrial areas be recorded with GPS and photographed?

Thank you for considering these comments as the RI/RA for the Smurfit Site progresses. Please do not hesitate to contact me should you have questions about these comments.

Best regards,

Mary B. Price  
Legal Department Science Coordinator  
Confederated Salish and Kootenai Tribes  
P: (406) 675-2700 ext. 1167  
E: [mary.price@cskt.org](mailto:mary.price@cskt.org)

## Hallauer, Lori

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**From:** Rouse, David <david\_rouse@fws.gov>  
**Sent:** Tuesday, August 07, 2018 2:55 PM  
**To:** Archer, Allie  
**Cc:** Mary.Price@cskt.org; DSchmetterling@mt.gov; Elizabeth Oleson; TMostad2@mt.gov; Travis Ross; Sparks, Sara  
**Subject:** Re: [EXTERNAL] Addendum 9 Baseline Ecological Risk Assessment Work Plan comments  
**Attachments:** 20180807 LTR Rouse\_Archer Smurfit Addendum 9.doc

Allie,

Please find attached a letter in word format with the U.S. Fish and Wildlife Service comments that were provided to Sara Sparks on August 6, 2018 via email.

Sincerely,

David Rouse

### David Rouse

U.S. Fish and Wildlife Service  
Environmental Contaminants Specialist  
585 Shephard Way, Suite 1  
Helena, MT 59601  
Phone 406.449.5225 Ext. 211  
[david\\_rouse@fws.gov](mailto:david_rouse@fws.gov)

On Tue, Aug 7, 2018 at 11:05 AM, Archer, Allie <[Archer.Allie@epa.gov](mailto:Archer.Allie@epa.gov)> wrote:

Hello Everyone,

Thank you for submitting your comments on the Addendum 9 BERA Work Plan. In the interest of providing a timely response to your comments, it would be helpful to include a word document of your comments. If you have already, no need to resend, but if you have just sent a pdf and are willing to forward a word version, that would be great. Thank you for your help!

Sincerely,

Allie

Allie Archer

Remedial Project Manager

EPA - Montana

406.457.5033



# United States Department of the Interior

FISH AND WILDLIFE SERVICE  
Montana Ecological Services Field Office  
585 Shephard Way, Suite 1  
Helena, Montana 59601-6287



In Reply Refer To:  
File: 06E11000-2018-EC-0037

August 7, 2018

Allie Archer  
United States Environmental Protection Agency  
10 West 15<sup>th</sup> Street, Suite 3200  
Helena, Montana 59626

Dear Ms. Archer:

Thank you for your August 7, 2018 email requesting comments on the Smurfit Stone Addendum 9 Baseline Ecological Risk Assessment Work Plan to be included in a word document. The U.S. Fish and Wildlife Service comments that were provided by email on August 6, 2018 to Sara Sparks are as follows:

- Since ponds located on-site may have had different historical uses and heterogeneous geochemistries, collecting multiple discrete sediment samples within individual ponds as opposed to the collection of a single discrete sample per pond may provide a more accurate dose estimate for those ecological receptors that incidentally ingest sediments, particularly small home range receptors;
- for table 1-1, grizzly bear is a federally-listed threatened species;
- in addition to fish, benthic macroinvertebrates are also prey to a variety of ecological receptors using the Clark Fork River (CFR), so benthic macroinvertebrate samples co-located with fish tissue samples in the CFR would improve the ecological risk estimate, as well any effort to establish predictive relationships between contaminants in the environment and concentrations detected in CFR fish tissue;
- the Service supports many of the proposed CFR fish tissue sampling locations like 51-CFR, 52-CFR, and 63-CFR that will represent important foraging and cold water refugia locations for some sensitive fish species; however, moving or adding sites farther downstream (e.g. St. Regis) and upstream (e.g. Blackfoot River) may improve the characterization of the nature and extent of contamination;
- similar to the principal study questions for the creeks that propose to compare tissue, sediment, and surface water concentrations to background, could these same study questions be included for pond sites (i.e., on-site pond concentrations vs background pond concentrations) or is there a justification for not including background pond sites?

We appreciate the opportunity to participate in the remedial investigation at the Smurfit Stone site and thank you for your consideration of these comments. If you have further questions about

this letter, please contact David Rouse at [david\\_rouse@fws.gov](mailto:david_rouse@fws.gov) or 406-449-5225 ext. 211.

Sincerely,

A handwritten signature in blue ink that reads "David Rouse". The signature is fluid and cursive, with a long horizontal stroke at the end.

David Rouse